▶ PACKET SWITCHING

Tymnet to unveil net products

Node, control board portend '87 debuts.

BY PAM POWERS
Senior Editor

SAN JOSE, Calif. — Tymnet/McDonnell Douglas Network Systems will this month introduce a packet-switching node and accompanying control board as part of a series of network products to be introduced through 1987, *Network World* has learned.

The Micro Engine 4 is the newest addition to Tymnet's family of packet switches. The product, like its predecessor, the Micro Engine 3, is designed for low-end applications with a limited number of connections. Rourke McCusker, a product manager for Tymnet, said the Micro Engine 4 supports a variety of protocols, including Systems Network Architecture/Synchronous Data Link Control (SDLC), asynchronous, Binary Synchronous Communications and X.25.

The node allows up to 14 port connections, four asynchronous and 10 synchronous, with 1,024K bytes of memory. McCusker explained that the increased protocol support allows users for the first time to employ a microcomputer where previously a minicomputer was required.

Older versions of the micro do not support bit-oriented protocols such as SNA/SDLC and X.25. The addition of these protocols creates a lower entry cost for a node with a limited number of connections — as much as 50% savings, according to McCusker. Transmission speeds run from 50 to 9.6K bit/sec with asynchronous connections and 50 to 19.2K bit/sec with synchronous. In addition, the Micro 4 takes advantage of Tymnet software used on other Engines, which monitors host and terminal lines as well as internodal links. The Micro 4 is available immediately and is priced at $20,000.

Tymnet also introduced the MAC Accelerator Kit III, which can represent a substantial savings for users with an installed base of Tymnet

▶ CENTREX PRICING

New option sways user

BY NADINE WANDZILAK
Staff Writer

BOSTON — A custom pricing option that promised 50% savings has kept one New England Telephone Co. user from abandoning Centrex in favor of a private branch exchange.

The Medical Area Service Co. (MASCO) is the ninth customer in Massachusetts to contract with New England Telephone for its Facilities Based Pricing Option, introduced this year.

MASCO coordinates telecommunications services among three medical facilities, which are among the nation's most prestigious, and five teaching institutions located within several blocks of each other here.

Under Facilities Based Pricing, which is now only offered in Massachusetts, Centrex costs are based on the user's distance from the telephone company's central office and on the Centrex services, such as call-waiting and call forwarding, used by the customer.

New England Telephone is tariffing the new pricing scheme on an individual customer basis. MASCO's tariff is currently under review, said Walter Cusack, MASCO's telecommunications network analyst. He said the option is expected to be approved by the state Department of Public Utilities within 30 days.

According to New England Telephone spokesman Mark Marchand, no other Bell operating company offers a similar customized cost-based pricing option.

Before New England Telephone made the new offering available, MASCO had decided to move from Centrex to a PBX, Cusack said. "But we compared the numbers," he said, "and we could not beat the new Centrex price."

The pricing option is also cheaper than MASCO's current Centrex service, said Cusack, who expects line charges to drop by more than half. MASCO is three miles from New England Telephone's Brookline central office.

MASCO examined the PBX option because it wanted to be able to predict its telecommunications costs for the next five to 10 years, Cusack said.

The Centrex contract guarantees MASCO locked-in prices for seven years on about 70% of the contract items, he said. The remaining 30% of the items in the contract are subject to change according to the cost of living factor.

MASCO manages what is primarily a voice network with some 4,500 phone lines and 6,000 telephones.

Established to keep communications costs down for member institutions, MASCO counts as its members the Dana-Farber Cancer Institute, Emmanuel College, Harvard University and its medical, dental and public health schools, Joslin Diabetes Center, Massachusetts College of Pharmacy and Allied Health Sciences, New England Deaconess Hospital, Simmons College and the Winsor School. Most of

▶ LAN GATEWAYS

Merrill Lynch develops DISOSS-local net link

Other network vendors could follow suit.

BY PAUL KORZENIOWSKI
Senior Editor

TORONTO — The development of a custom gateway between IBM's DISOSS and 3Com Corp.'s 3+Mail may transform a large user here into a software vendor and may intimate the introduction of a bevy of similar products from local net vendors.

Linkage, Inc., a 10-person consulting firm, is developing the gateway for Merrill Lynch of Canada, Inc. If the product functions as specified — it is intended to allow DISOSS and 3+Mail users to swap documents via IBM's LU 6.2 — it could become commercially available as early as the first quarter of 1987.

"When we signed the contract for the software with Linkage, we knew that there might be other companies that would want a generic version of the link," said K. Garry Rasmussen, chief administrative officer at Merrill Lynch.

The work at Merrill Lynch may foreshadow an important local networking trend. In 1986, almost every major office systems vendor announced some type of link between its electronic mail software and DISOSS, an E-mail and library services application that runs on IBM mainframes. Observers say local net vendors will follow suit by offering their own DISOSS link products next year.

"Even though acceptance of DISOSS has been slow, companies realize they have to offer DISOSS support in order to sell their products to large corporations," said Stephen Randesi, chairman of the board at Gen2 Ventures, a consulting firm in Saratoga, Calif.

Earlier this month, NBI, Inc., based in Boulder, Colo., announced a gateway between its Ethernet network and DISOSS. NBI is actually offering a two-step DISOSS link. The Ethernet network is connected to a minicomputer that serves as the gateway to the host software.

Development of the 3+Mail link is one step in a 2-year-old plan to tie Merrill Lynch's employees into one E-mail system. The financial services giant has three groups of users spread throughout Canada.

One group, housed at the home office complex here, does a great deal of transaction processing work and requires the horsepower supplied by the firm's IBM 3090 mainframe. These users needed an office automation package that re-

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▶ ELECTRONIC MAIL ASSOCIATION

User touts global net

BY KARYL SCOTT
Washington, D.C. Correspondent

WASHINGTON, D.C. — At the annual Electronic Mail Association meeting here last week, Westinghouse Electric Corp. described its corporatewide electronic mail system that links more than 10,000 users in the U.S. and 30 other nations.

Westinghouse's E-mail network got up and running after a month-long pilot project in 1979, and the company has added about 150 new users every month since, said Thomas Miller, manager of E-mail. Westinghouse is sold on E-mail, "because we found the cost of not communicating is greater than the cost of electronic mail."

Miller periodically polls users to determine whether the system is serving their needs. What users like most about E-mail is the immediacy of it, he said. "E-mail has the shortest communication cycle of any form of communications we use," Miller said. "A user can send a message to a colleague and avoid the annoyance and delay of telephone tag."

E-mail is accessible to all users within Westinghouse on a worldwide basis. It is available 24 hours a day and has an uptime of 99.6%, Miller said. Some 500 users on the network are with companies that are Westinghouse customers and suppliers.

Westinghouse's system is fast. It takes less than five minutes to deliver a message anywhere in the world, Miller said. And, he claimed, it is inexpensive compared to other forms of communications such as telex or overnight package delivery.

The pilot project was conducted to solve a communications problem between Westinghouse's chief executives and their staff. E-mail was then gradually deployed throughout the diverse organization that, among other things, manufactures electronic components, bottles 7-Up soft drink and sells insurance.

Westinghouse licenses its E-mail software from Dialcom, Inc. "We run the software on our hardware, and Dialcom manages the network on a facilities management basis," Miller said.

Miller tries to keep users happy in a couple of ways. The first is local support for everyone. Each office has a designated support person on staff, usually a secretary. "We found that you can't provide support only from headquarters. And techies don't provide good support. So we made secretaries the support personnel," he said.

Secondly, Westinghouse keeps the system consistent. "People don't like to change the way they access E-mail," he said.

According to Stuart Mathison, vice-president of special projects at Telenet Communications Corp., Westinghouse is not the only company using E-mail to increase productivity.

"We are starting to see new behavior patterns, in which users look for their messages when they get in the office in the morning," he said. "But in the case of public mail systems, there are far more subscribers than active users."

The newest driving force in the E-mail market is the need to interconnect public networks and to give private networks easy access to the public systems, said Roy B. Anderson, vice-president of Western Union Telegraph Co.

"Users are starting to realize the benefits of accessing information sources on a regular basis," he said.∅

▶ MANAGEMENT INSIGHTS

Bypass not cost-driven

BY MICHAEL FAHEY
Staff Writer

NEW YORK — Network availability and reliability, not saving money, are the primary forces driving the nearly 25% of users who employ some sort of bypass scheme, according to a report released here last week by Diebold Research Programs.

More than one-quarter of the companies responding to the survey said they bypass the public switched long-distance network, and nearly an equal number said they bypass the local switched network.

But the companies that employed bypass said they trimmed communications costs, on average, less than 7%. Those meager savings, said the study's authors, indicate that other factors, such as reliability, are the driving forces behind bypass.

Diebold surveyed chief financial officers of about 1,000 Fortune 1,000 companies, according to John Anderson, associate director of research. About 100 companies, with average telecommunications expenditures of $16.5 million per year, responded.

More than half of the respondents said responsibility for all telecommunications functions rests with their MIS departments.

MIS managers at 53% of the companies manage all their organiza-

tions' telecommunications activities. At 10% of the companies, non-MIS managers oversee all telecommunications functions. More than 18% of the companies indicated that MIS managers had charge of data communications, while non-MIS personnel managed voice communications. Sixty percent of the companies said that in 1984 the telecommunications manager reported directly to the head of the

MIS department. The percentage rose 7 points in 1985, with respondents projecting smaller increases for 1986 and 1987.

Anderson said the increase in the number of companies with telecommunications managers reporting directly to the MIS manager was an indication of the growing importance of communications in corporate informations systems.

The survey also underscored the difficulty of holding on to trained telecommunications professionals. The study revealed that the turnover rate for professional telecommunications staff was nearly 17% during the last three years.∅

▶ WAIVER WRANGLE

AT&T seeks rule change

BY KARYL SCOTT
Washington, D.C. Correspondent

WASHINGTON, D.C. — AT&T said it will ask U.S. District Court Judge Harold Greene this week to transfer oversight of regional Bell holding company line of business waivers from the Department of Justice to the Federal Communications Commission, an action the RBHCs warn would hinder competition.

Currently, the Justice Department investigates RBHC line of business waiver requests and makes recommendations to Greene, who must approve the waivers. Under AT&T's proposal, the FCC would investigate waiver requests

and make recommendations to Greene.

"AT&T is looking for ways to streamline the waiver process. We feel some changes are in order," AT&T spokeswoman Edith Herman said.

AT&T has attempted to muster support among the RBHCs but has met with mixed reactions. Bell Atlantic Corp. issued a statement saying, "AT&T is determined to slow the introduction of competition in the telecommunications industry and protect its monopoly in long distance and manufacturing."

The RBHCs fear the FCC's complex procedural rules would slow the waiver recommendation process.∅

▶ INDUSTRY IMBROGLIO

Perot, Smith in divorce

BY BOB WALLACE
Senior Editor

DETROIT — For General Motors Corp. Chairman Roger Smith and Electronic Data Systems Corp. (EDS) Founder and Chairman Ross Perot, breaking up was not hard to do.

Friction between the corporate czars and the inability of their respective staffs to work in tandem is said to have been the impetus behind GM's purchase last week of Perot's GM stock, a buy out valued at roughly $750 million. Perot had been the largest single shareholder of GM stock.

Perot's departure may have restored AT&T's interest in buying all or part of EDS, according to inside sources who told *Network World* that talks between GM and AT&T have been renewed. Neither company would comment on whether negotiations for the sale of EDS had been reopened. Last month, GM and AT&T broke off earlier bargaining over EDS, which is currently building a sophisticated worldwide communications network for the automaker. The companies reportedly could not come to terms on a price for EDS.

In a management shakeup following the resignation of Perot and three other top EDS officials, Donald Atwood, currently a GM executive vice-president and director, was assigned to oversee a newly formed unit that includes EDS, Hughes Aircraft Co., GM's defense operations and its Delco Electronics Corp. Lester Alberthal Jr. was named chief executive officer of EDS. Atwood's fledgling group will coordinate, develop and implement advanced technology systems in GM facilities.

Widely published disparaging comments made by Perot about the operations of the world's largest company served to weaken an already tenuous relationship between Smith and Perot. By allowing Perot a position of prominence and a pulpit from which to preach his productivity gospel, GM left itself open to scathing criticism from the EDS head. Hostility between GM employees and EDS staffers reportedly also fueled GM's attempts to market the data processing services subsidiary to AT&T.

Dan McFarland, a principal engineer with Washington, D.C.-based R.W. Beck & Associates, an engineering and consulting firm, served as a telecommunications manager for EDS in 1985 and 1986. McFarland labeled as ludicrous published reports claiming GM hoped to cut operating expenses by selling EDS.

"GM has learned a very fundamental lesson in takeover management," McFarland said. "When you take over a corporation, you purchase that asset. That asset must become an integral part of the parent organization — and not operate as an independent organization."

McFarland said the Perot resignation and stock buy out will enable GM to regain control of its subsidiary. "The bottom line is GM is ready to assert its authority over EDS. GM will gain total, unequivocal control of EDS," he said. ⧖

▶ ELECTRONIC MAIL

Lotus links to MCI Mail

BY JIM BROWN
New Products Editor

CAMBRIDGE, Mass. — In an effort to spur usage of its MCI Mail electronic mail service, MCI Communications Corp. teamed with Lotus Development Corp. to unveil last week an IBM Personal Computer-resident package that automates access to MCI Mail and transmits a variety of files, including Lotus 1-2-3 spreadsheets, over the E-mail net.

The Lotus Express for MCI Mail package handles MCI Mail logon, message search and message download sequences. It also supports the transmission and reception of binary files, including spreadsheets and word processing documents with the formulas intact, as well as data base files, graphics, ASCII text and executable programming code.

Allowing direct access to the MCI Mail network for binary files eliminates the need to convert documents and files to ASCII code before sending. It also alleviates the need to rekey spreadsheets and other documents after they have been downloaded from an MCI Mail E-mail box.

Featuring a menu-driven interface similar to the 1-2-3 spreadsheet package, Lotus Express for MCI Mail resides in random access memory (RAM) as a background application, allowing another application to run while mail is being sent or received. That capability is available on Personal Computers with 640K bytes of RAM. The package will run as a stand-alone application on IBM Personal Computers or compatibles with 256K bytes of RAM.

Running as a background application, the package will automatically logon, search, download and store to disk any messages in the user's MCI Mail mailbox at user-defined intervals. An audio tone alerts the user that a message was downloaded. The package will also check for and download any incoming mail when the user sends a message.

By teaming with Lotus — the largest personal computer software vendor — MCI hopes to spur an increase in the number of messages it carries over MCI Mail, analysts said. While MCI led the market with a 27% share of the total installed E-mail boxes in 1985, the firm ranked fourth among E-mail message carriers by garnering only 9% of the messages sent that year, according to a Link Resources, Inc. study.

Lotus Express for MCI Mail will sell for $100 when released in early 1987 and will include a 1-year MCI Mail account. The package requires DOS Release 2.0 or higher and a Hayes Microcomputer Products, Inc. Smartmodem or compatible modem. ⧖

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installed in most buildings during construction. In February, the FCC ordered 21 of the 22 Bell operating companies to transfer ownership of the inside wire to users on Jan. 1, 1987. New York Telephone Co. was granted a 3-year waiver.

The decision also required maintenance of inside wire to be detariffed on the same date. In general, detariffing means that wire maintenance fees would no longer be included in the cost of telephone service and that telephone companies could charge separately for upkeep. The amount users will pay for maintenance will vary on a state-by-state basis.

Last month the FCC did an about-face on the ownership issue after the BOCs and organizations representing independent telephone companies petitioned the commission to reconsider its decision. They complained that distinguishing their inside wire from wire the building owner may have installed would be very difficult.

Telephone companies also said it would be an onerous task to separate capitalized wire from expensed wire. Capitalized wire refers to wire installed prior to April 1982 for which the expense of installation has not been completely recovered. The BOCs will continue to provide maintenance for this type of wire. Expensed wire is wire installed after mid-1982 for which all costs were recovered. Maintenance for expensed wire will become optional on Jan. 1.

Separating these two types of wire, the telephone companies claim, would be a costly process that would substantially drain their resources. New York Telephone spokesman Dave Bradley said his telephone company prepared a study that claimed such an undertaking would require 500 employees working for six months at a cost of $30 million.

As a result of the telephone companies' pleas, the FCC issued an order stating the BOCs and other telephone companies would not have to relinquish ownership of inside wire to users, adding more confusion to an already hazy issue.

But the FCC's detariffing order remained unchanged. Thus, explained Pacific Bell spokeswoman Diane Olberg, users who continue to use telephone company-owned wire will have to pay for telephone company maintenance of the wire. "We will no longer be permitted to repair that wire at no charge to the user." She said users will have two inside wire maintenance plan choices. "Users can either pay Pacific Bell a 50 cent per month repair plan fee, or be charged a flat repair fee of $60 for each inside wire problem they report to us."

Because the FCC granted New York Telephone an extension on detariffing inside wire maintenance, its customers will not have to pay new separate fees until at least 1990.

Mary Jean McMonigle, inside-wire line of business manager for Bell South Services, which handles inside wire maintenance for Southern Bell Telephone and Telegraph Co. and South Central Telephone Co. customers, claimed the companies' users would not immediately be affected by detariffing of wire maintenance. McMonigle said plans for new inside wire maintenance services do not exist at present, but added they may be created at a later date.

Since most BOCs will retain ownership of inside wire until at least 1990, users planning to stop using the wire, or who want it removed to free up clogged conduit space, will have to pay the BOC for removal or purchase of the wire, in some instances.

One communications consultant, however, argues most BOCs will eventually abandon the cable, which, he said, they do not necessarily own. Gerald Corcoran, of Telcom Management Concepts, Inc., a Washington-based consulting firm, said one BOC spokesman told him his company didn't care what happened to the inside wire in Corcoran's client's facility. Based on that, Corcoran said he will send a letter to his clients' BOCs stating that, unless he is notified otherwise within a 10-day period, "[The client companies] will assume [they] own the wire and will proceed to use it where [they] need it and remove it when necessary."

Corcoran said, in general, the BOCs are not eager to pull wire out of buildings. They are, he said, quite willing to sell it to users. Several BOCs, such as Pacific Bell, Southern Bell, New York Telephone and South Central Telephone, said they will sell the inside wire to the user if the user wants to incorporate the cable plant in some type of rewiring project.

Bell South's McMonigle claimed many users have already chosen to purchase the inside wire from their local telephone companies. She predicted most users would choose to buy the wire but warned that the procedures for disposing of or using this inside wire vary from state to state. ⧖

▶ MARKETING MANEUVERS

LAN Shootout a misfire?

BY MARY PETROSKY
West Coast Correspondent

SANTA CLARA, Calif. — In an event that will be remembered for its marketing hype and the controversy it spawned, network software from Novell, Inc., 3Com Corp. and IBM was put to the test last week at the Novell-sponsored "LAN Shootout."

Novell's marketing event featured somewhat inconclusive and contradictory network performance tests conducted by The Seybold Group and Innovative Software, Inc. Neither 3Com nor IBM participated, although 3Com was invited and Novell claims IBM was invited. However, a spokeswoman for Novell was unable to name any IBM invitees and a spokeswoman for IBM said she knew of no invitation.

3Com had earlier protested the Shootout, saying it was more a publicity event than a presentation of unbiased information.

Seybold and Innovative tested networks configured for from two to 12 users. The nets included an IBM Token-Ring Network running IBM's PC LAN Program and two Ethernet networks with 3Com in-terface boards, one running 3Com's 3+ network software and the other Novell's Advanced Netware.

Under the established conditions, both testers showed Netware was consistently faster, while the performance of 3Com's 3+ software degraded as users were added to the network. The PC LAN Program exhibited significantly poorer performance, although some questioned whether the Token-Ring Network's 4M bit/sec maximum speed contributed to its poor showing. Ethernet operates at 10M bit/sec.

The two testers were not in complete agreement on all points. Innovative's tests indicated that 3Com's 3+ software performed better on a dedicated IBM Personal Computer AT server than it did on 3Com's own server, whereas Seybold found just the opposite to be true.

While several speakers at the Shootout stressed that users need to consider more than just speed when evaluating a local net, a number of onlookers wondered what, if anything, had been proven.

"If one of the consequences of this is that people are skeptical about benchmarks, something will

ers with lower-than-AT&T prices and higher-quality services. Converging forces — in the form of AT&T price cuts, aggressive marketing by both AT&T and US Sprint Communications Co., network expansion and equal access upgrade costs — have put increasing cost pressure on MCI and taken a toll on profitability.

MCI will sustain the one-time pretax charge as a result of an enormous write-down of analog and satellite equipment that has been replaced in recent years with fiber-optic and other digital equipment. The company will also incur costs from severance pay and other consolidation expenses as it attempts to pare its work force.

In the past four years, MCI has spent some $3.5 billion expanding its network, according to a company spokesman. The original upgrade plan called for 1987 expenditures of $900 million, but that figure has been reduced to less than $800 million. The spokesman said "because digital equipment prices have dropped, and because we can now lease fiber routes more cheaply than we had been building them, we can do almost as much as we intended to do initially for less money in 1987." MCI will still have fiber-optic connectivity coast-to-coast by mid-January, he said.

In addition to saving money on network expansion, the company has started to lay off employees throughout the nationwide organization. Of a total 16,000 jobs, the company will eliminate 15%, primarily from engineering and MIS. The spokesman said commercial sales and service forces will not be affected by the cuts and may even increase in 1987. Employees who are laid off will receive three weeks pay and an additional two weeks pay for every year of service.

"Our ability to serve our large customer base is in no way impaired by this," he said. "These moves will make us more price-competitive."

While the company would not forecast future financial performance, it said that it will cut capital spending by $100 million, internal operating costs by $100 million and annual depreciation expenses by $50 million. MCI also said it will commence a stock repurchase, perhaps involving up to 15 million shares. Stock repurchases have been common in the industry lately as a means to push up the price of stock that companies feel is undervalued.

The cost of equal access upgrades and network enhancements on the one side and AT&T-led price cuts on the other have placed MCI squarely "between the devil and the deep blue sea," said Doane Perry, senior analyst with International Data Corp. He said MCI has adopted a conservative posture by trimming the sails at this stage of the game, whereas US Sprint is spending madly to upgrade its network and attract large users. That, he said, may mean MCI will have to settle for a lesser market position than was its original aim.

In general, analysts felt MCI's moves were necessary, if difficult. "MCI is still in transition from competing on price to competing in service offerings," Perry said.

Victor Krueger, vice-president of telecommunications industry service at Dataquest, Inc., said, "MCI had the foresight to see what it's facing in the coming quarters and realizes the situation is serious. If the cost cutting improves its financial performance in the future, that is more important than any adverse publicity now."

Some users staunchly defended the carrier's moves as well. Edward Youngberg, director of telecommunications at The Prudential Insurance Company of America, said, "My opinion is that it's healthy. MCI has some profit crunches it has to get around, and I think it's a good move to pare back and run lean and mean."
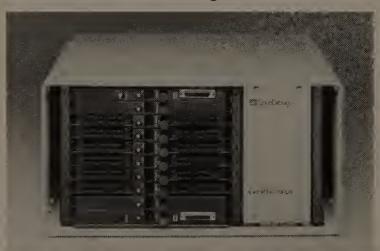
Sid Smith, manager of corporate telecommunications at Crowley Maritime Corp., another MCI user, agreed. "We think it makes sense. I don't expect it to affect our service in any way," he said.

Jay Ritterskamp, director of telecommunications at Monsanto Co., said he expects to continue working with MCI for years. "After all, if you look at what they've already spent on the network," he said, "a $100 million reduction looks like a rounding error." ◪

net Engines.

This process control board uses static random-access memory technology to consolidate memory and memory access control functions onto a single board, reportedly resulting in increased packet throughput and a vacant board slot on the Engine.

The extra slot can then be configured as a synchronous or asynchronous port. Tymnet has tested throughput with the MAC III in a variety of applications, resulting in improvements ranging from 20% to 100%.

Pricing

Tymnet prices the MAC III upgrade kit, which includes the MAC II and necessary changes to existing equipment, at $24,000.

Tymnet's announcements are exemplary of the technological advances being made in the packet-switching industry of late. The company's competitors in the private network market, such as Telenet, Inc. and M/A Com, Inc., have recently devoted considerable energy to the improvement of their product lines, at both the low and high ends.
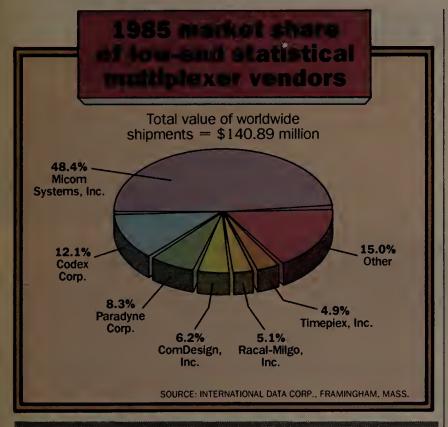
Enhancements typically include better network management, increased protocol support, higher throughput speeds and lower prices.

In 1986, vendors selling packet gear for private networks underwent a lean year. Consequently, they have redoubled efforts in research and development to attract what is generally perceived to be a potentially large user base. ◪

INDUSTRY UPDATE

> 66 We have heard repeatedly that activity levels within the industry in terms of quoting and proposals have never been higher, but that closings have been difficult, reflecting a lengthened evaluation period as well as, to a certain extent, capital spending restraints. A transition in decision-making has occurred in large organizations, which, in the past, purchased systems on the basis of hardware evaluation. Today, the process is a more lengthy one, encompassing complete solutions.
>
> From **Technology Comments**
> Alex. Brown and Sons, Inc.
> Baltimore, Md.

1985 market share of low- and statistical multiplexer vendors

Total value of worldwide
shipments = $140.89 million

- 48.4% Micom Systems, Inc.
- 12.1% Codex Corp.
- 8.3% Paradyne Corp.
- 6.2% ComDesign, Inc.
- 5.1% Racal-Milgo, Inc.
- 4.9% Timeplex, Inc.
- 15.0% Other

SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

INDUSTRY EYE

DOUGLAS W. FAGG

Will Santa give managers what they want?

As we approach the holiday season, the hopeful child in all of us begins to wish for things to enrich the coming year. It's this same time of year, when the spirit of giving prevails, during which many MIS and telecommunications managers are heavily involved in budgets and planning for 1987.

Will 1987 bring a new system design? Do the compelling costs of new technologies mean it's time to evolve to using T-1? Will upper management agree to fund the project? Will there be sufficient staff capable of handling the implementation and ensuring smooth cutover? Can system availability be maintained at required levels? What unexpected requirements await in 1987?

It would seem that the issues and challenges facing MIS and telecommunications managers today are worthy of a few direct 1.544M bit/sec pipelines to Santa. Their wish lists are long.

■ *Managers wish for more understanding from corporate management.* They want support from the top. With the expectations placed on today's managers, it's critical that upper management have a thorough understanding of the strategic importance of the network. Such understanding fosters support for budget requests.

■ *Managers wish for the latest tools.* Today, as new technologies take hold, vendors are close behind developing diagnostic equipment to ensure that, in the event of a problem, the source of trouble can be quickly isolated.

Tools range from troubleshooting devices to performance monitoring systems. The proper tool, in the hands of a skilled technician, can mean getting

Fagg is the founder and president of PacTel Spectrum Services, Inc. in Walnut Creek, Calif.

► PBX MARKET

Intecom cuts back work force again

BY NADINE WANDZILAK
Staff Writer

ALLEN, Texas — Citing lower than expected short-term revenue, Intecom, Inc. last week dismissed 180 employees in its third round of layoffs in less than two years.

The private branch exchange manufacturer's 16% staff reduction left its work force at just under 900 employees. The company laid off roughly 200 employees in March 1985 and some 120 employees in August 1986. About half of last week's cuts involved workers in the company's manufacturing operations, said Lynn Carey, corporate communications manager.

Intecom has suffered through a string of losing quarters. In the first quarter of this year, the company lost $7.9 million. It then posted a $19.8 million loss in the second quarter, owing primarily to the $12 million legal settlement of its suit with American Network, Inc. According to a spokesman for new corporate parent Wang Laboratories, Inc., Intecom lost $300,000 in September, when Wang acquired the firm.

Industry watchers said Intecom is getting pinched by overcrowding in the PBX market and by intensifying price competition. Carey said that while Intecom's sales have improved in the last few months, the company has suffered from lengthy sales cycles. Company President John Thibault said Intecom is now focusing its efforts on sales as well as research and development.

Thibault said Intecom is taking advantage of the resources of Wang and has been able to eliminate "redundancies" in staffing. He predicted Wang's support, new relationships with the regional Bell operating companies and stepped-up marketing efforts would improve company revenue.

John Malone, president of consultancy for The Eastern Management Group in Parsippany, N.J., said Intecom is faced with the unhappy prospect of having too many competitors in the PBX industry. He said Intecom is one of 40 PBX makers in the U.S.

Exacerbating the problem of market crowding, Malone said, is the fact that PBX prices are plummeting faster than improvements in technology warrant. "So we're looking at a type of gas war going on in the PBX industry," he said.

As a result of competitive pressure, companies are almost giving equipment away, according to Doane Perry, senior telecommunications analyst for the Framingham, Mass.-based International Data Group. Perry said Intecom suffered because its products were seen as more expensive than competitive offerings. The company has worked to shift that perception, he said.

In more positive news, Intecom resolved its differences with the University of Denver over faulty PBX equipment installed in 1984 at a cost of $3.5 million ("Buyers challenge firm," *NW*, Sept. 22).

The university's current IBX S-40 PBX will be replaced with a newer IBX S-80 switch to be installed by US West, Inc. The S-80 can host a larger number of users and supports LANmark, Intecom's local-area net. US West is an Intecom distributor with headquarters in Denver. The original installation was handled directly by Intecom.

The university and Intecom reached agreement independent of the binding arbitration that started last month. Their contract calls for such arbitration to resolve contractual differences.

Although both parties have resolved their differences, the arbitration case has reportedly been left open until the replacement project is completed. Both Intecom and the University of Denver confirmed the replacement of the S-40 with an S-80. The agreement reportedly precludes any other comment about the settlement. ⊿

► INTELSAT INVESTIGATION

Colino's conduct scrutinized

BY MICHAEL FAHEY
Staff Writer

WASHINGTON, D.C. — The Board of Governors of the International Telecommunications Satellite Organization last week removed from office Director General Richard Colino and Deputy Director General Jose Alegrett and formed a special committee to investigate the pair's role in an unauthorized $1.35 million payment to loan brokers.

The board met here to review a report drafted by outside auditors, which, according to published reports, showed that Colino had Intelsat executives rewrite and back date documents relating to the payment. The report said Alegrett made the payment despite advice from Intelsat's legal counsel that it was unnecessary. The unreleased Peat Marwick Mitchell & Co. report also said Colino gave the loan brokers a document that eliminated the possibility of Intelsat recovering the payment.

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▶ MERGER MANEUVERS

White knight saves T-Bar from Beall

Data Switch comes to aid of switch-maker in time of need.

BY PAM POWERS
Senior Editor

WILTON, Conn. — Just as children in times of crisis will nurse their parents back to health, Data Switch Corp., initially formed by T-Bar, Inc. employees, is bringing the latter company under its wing in a merger designed to fend off the unfriendly takeover attempts of John Beall and Company.

T-Bar, a data communications company located here, has for several weeks fought off an unsolicited $7.25 per share tender offer by John Beall. After advising shareholders to reject Beall's offer, T-Bar announced last week its intent to merge with Data Switch.

Under the terms of the proposed merger, Data Switch will purchase up to 70% of all outstanding T-Bar shares at $8.25 a share, bringing the total value of the transaction to approximately $57 million. The companies had combined revenues of approximately $62 million for the first nine months of the year.

T-Bar employees founded Data Switch 10 years ago. It has since become a strong contender in the channel extender market, said Jeff Kaplan, director of communications industry research at International Data Corp., a Framingham, Mass.-based market research firm. Data Switch also markets communications matrix switches and performance measurement systems. Kaplan said the company has been weaker on the data switching side, although overall profits have been on the upswing for six consecutive quarters now.

T-Bar, in contrast, has expanded its matrix switch product line so successfully that Henry Morgan, the company's president, said activity in that line alone now comprises some 75% of total business. The Monolith and Galaxy matrix switches, announced in September 1985, were hailed as examples of a new generation switch architecture that competitors would be likely to follow.

"One of the tremendous advantages of this is that we're developing the same products as Data Switch," Morgan noted. "By merging, we almost double our R&D capacity. We could now merge our matrix and theirs and bring them under central control. We could access the system with their Intellinet performance measurement product."

Kaplan agreed that the two companies could benefit by marketing some complementary products, but warned that there could be a lot of incompatibility and redundancy among products as well.

"It seems to me that Data Switch is coming in as a white knight," he said. "If Beall hadn't attempted a hostile takeover, maybe this would never have happened. Therefore, the merger probably hasn't been well thought out."

T-Bar has had its share of trouble in recent years. Although earnings picked up in 1986, the company has a history of financial problems.

"T-Bar has a fair amount of debt; that's why they're in this situation," said Rudolph Morin, Data Switch's senior vice-president of finance. And the competition in the matrix switch market is fierce, despite the technical strength of T-Bar's product line.

One financial analyst, who asked not to be named, said she can make little sense of the merger. Data Switch gains some good technology, she said, but no marketing expertise, wide installed base or healthy balance sheet as a result of the T-Bar merge. Equally important, both matrix switch lines are in dire need of net management features, a problem that is not solved by integrating the two, she said.

But Morgan said he sees a lot of good in the move. "We have a computer matrix and a communications matrix. With these, the other equipment we make and the equipment Data Switch makes, the user will have the ability to manage the entire system from a single point," he said.

"Together we will form a company of considerable size, so we can approach the critical mass we need to compete effectively in the marketplace," he added.

And Morin said he is confident, despite the fact that Data Switch will assume T-Bar's financial problems, that the marriage will create highly beneficial operating efficiencies. "We will become a very important player," he said.∎

BRIEFS

Network Innovations Corp. announced a multiyear connectivity OEM agreement with **Motorola Computer Systems**, a subsidiary of Motorola, Inc. The agreement calls for Network Innovations to provide Motorola with an intelligent link between IBM personal computer applications and UNIX relational data base management systems for Motorola's latest line of departmental computers. The deal allows Motorola to market Network Innovations' multiplex networking software.

US West Information Systems and **Contel Financial Systems** signed a one-year, nationwide distribution contract. The contract calls for US West Information Systems to distribute Contel's Centre-Max electronic key telephone system for use behind Centrex service. US West is an authorized sales agent for Mountain Bell, Northwestern Bell and Pacific Northwest Bell Centrex and central office-based services within its 14-state core territory.

BellSouth Corp. acquired **Dataserv, Inc.,** a computer leasing and maintenance group. BellSouth will offer one of its own common shares for every 20 Dataserv common shares. This values the whole of the common stock of Dataserv at $96.55 million.

Applitek Corp. has been awarded a $2.2 million contract with the Government Systems division of **GTE Corp.** The initial order calls for more than 200 network interface units to help modernize the U.S. DOD automatic data processing system (WIS). GTE will use Applitek's NI10/XTs to support workstations, hosts, gateways and interchannel bridging on broadband local area networks for integration support of five sites by July 1987.

a quick handle on system problems and gaining a clear understanding of how a new design will alleviate bottlenecks.

The wish list goes beyond technology.

■ *Managers wish for someone who can handle the operational challenges of maximizing system availability.* They wish for someone who can take on a problem from start to finish and ensure its resolution. They long to return to the simple days when one call to one person was all it took to resolve system trouble. How nice it would be to find such a person, packaged under the tree.

■ *Managers wish for responsiveness from their service vendors.* When a problem is found, managers want to know they can rely on their maintenance organizations to get it resolved within the parameters of the service contract.

■ *Managers wish for an end to the management-by-crisis style that seems to plague so many organizations.* Why is management by crisis so prevalent? The problem is fueled by a couple of factors. Limited staff resources are one factor. Lack of information needed to determine the source of a problem is another.

With limited staff, people often get pulled from a project to resolve another problem. Diverting resources to address operational problems, such as system availability snafus, puts an organization behind on the other projects at hand.

The lack of complete, accessible systems information also contributes to management by crisis. Managers need methods of tracking systems inventory and both the physical and logical connections.
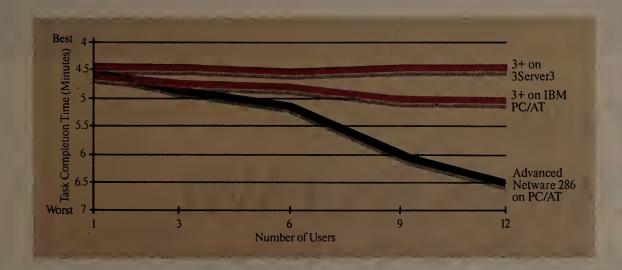
■ *Managers wish for an end to finger pointing.* They want the ability to determine the source of trouble accurately the first time. They are painfully aware that finger pointing prolongs system downtime and delays service restoral. Maybe Santa's elves could go on a finger-breaking mission this year.

■ *Qualified people are near the top of the Christmas wish list.* It is becoming more difficult to find skilled technicians. As companies implement systems using various technologies, they must cultivate personnel who are proficient in many areas. As the system grows in complexity, more people are needed to keep it running efficiently.

■ *Managers wish for bigger budgets.* They need dollars to staff adequately and keep good people on board, to purchase tools and to contract for services from companies who can help them address the challenges of managing voice and data systems.

They seek measurable proof that investments in services and new diagnostic tools will add dollars to their bottom line. After all, Christmas is a time of year to be wary of Scrooge, and corporate management wants convincing proof before signing off on the 1987 budget.

Perhaps this year many vendors will play Santa. Managers may be pleasantly surprised when they look under the corporate Christmas tree.

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TELECOM TRENDS

CROSS TALK
BOB WALLACE

Giving away chores leads to giving up more

Telecommunications managers may want to avoid becoming too dependent on vendors that want to run their communications networks for them.

Users find the idea of letting a long-distance carrier handle most aspects of their networks appealing, but these same users risk having vendors dictate the future of their networks to them.

By signing on a carrier to provide, operate, monitor and troubleshoot his communications network, the telecommunications manager could possibly be lessening his own value to the corporation.

Of course, allowing a carrier to run his network will likely save the user a large sum of money. Empowering this long-haul vendor to handle network control and management can eliminate the need to purchase a costly network management system.

But when the telecommunications manager turns over the network reins to a long-haul vendor, doesn't this manager become more expendable because of his diminished control of the network?

Might not the telecommunications manager himself lose as the result of the loss of flexibility to sample new long-distance service and network offerings?

Worse still, if the telecommunications manager signs on as a subscriber to a voice network service, isn't he placing the fate of the network solely in the vendor's hands?

And what recourse does the telecommunications manager have when the vendor decides the networking service must be phased out or isn't high enough on the vendor's priority list to draw needed capital for network improvements or expansion?

Does the often-discussed migration path exist?

Ask users of AT&T's now-defunct Net 1000 offering what position they found themselves in when AT&T pulled the plug on the service.

How do you define ISDN?

Although ISDN stands for Integrated Services Digital Network, participants at the recent International ISDN Conference in San Francisco came up with their own favorite definitions, including:

- Integration Subscribers Don't Need
- I See Dollars Now
- It Still Does Nothing

Theodore Irmer, director of the Consultative Committee on International Telephony and Telegraphy, says it stands for: Irmer Says Decisions Now.

▶ INTERVIEW

CCITT chief Irmer talks about ISDN

Cites challenges for users, standards-makers.

Last month, the first actual Integrated Services Digital Network field trial got under way. Standards for the equipment used in the trial were established by the Consultative Committee on International Telephony and Telegraphy (CCITT). The organization is one of four organs of the International Telecommunications Union, a special agency formed by the United Nations to oversee world communications. Theodore Irmer, director of the CCITT, recently visited the U.S. and Network World senior editor Paul Korzeniowski spoke with him about the future of ISDN and the challenges the CCITT faces.

What issues have to be resolved before ISDN can be implemented on a broad scale?
We understood that the technical recommendations for ISDN were drawn up in a short period of time — four years. Currently, they are just a broad framework. We have to refine and enhance the standards that we already have. Then we have to agree upon what services will be offered.

ISDN can offer services that are very different from existing services. With ISDN, a duplex signaling channel [the B channel] is used during a conversation. The channel can be used to relay information such as how much the call is costing or that someone is trying to call you. These are just a few examples of the possible features.

The carriers have to agree on what services will be provided. Some carriers say that the services should not be part of the standards; others want to standardize them. This issue is more a regulatory matter than a technical issue.

We also want to expand ISDN so it can support broadband capabilities. Currently, ISDN is limited to 64K bit/sec channels. For applications like video services, a customer may need more bandwidth, and we want ISDN to be able to support that user.

> **" ISDN won't be available until 1990. We can't expect wideband ISDN nets until 1995. "**

How long will it be before ISDN services are widely available?
ISDN in its truest sense will not be available until 1990. We can't expect to see wideband ISDN networks until 1995 at the earliest.

During the next three years, users will see a number of ISDN networks developed. I am

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▶ INTERNATIONAL

British Telecom, Bell Atlantic set to supply UK with Centrex

BY KARYL SCOTT
Washington, D.C. Correspondent

WASHINGTON, D.C. — With the assistance of a regional Bell holding company subsidiary, British Telecommunications plc will introduce Centrex service to businesses in the UK for the first time.

Bell Atlantic International, a Bell Atlantic Corp. subsidiary headquartered here, will provide consulting services to British Telecom for all phases of the design and operation of the Centrex system. British Telecom has purchased a European 5ESS — needed to provide the central office service — from AT&T/N.V. Philips, a joint venture company based in the Netherlands.

Bell Atlantic International will assist British Telecom, the primary provider of tele-communications services in the UK, with market research, market segment strategies, network architecture, ordering procedures, competitive analysis, training of account managers and sales personnel, and tariff and pricing issues, according to Bell Atlantic spokesman Jack Baird.

Bell Atlantic had previously received permission from U.S. District Court Judge Harold Greene to engage in international consulting activities.

Bell Atlantic was chosen for the venture because it is viewed by British Telecom as one of the most aggressive Centrex providers in the U.S. market, according to Roger Bates, general manager of business telephony services for British Telecom. A team of Centrex specialists will be sent to the UK by the end of this month to begin work on the project.

Management from **page 13**

Ask state telecommunications directors who relied on AT&T's Telpak bulk circuit purchase offering why they panicked when the announcement was made that AT&T would be eliminating the offering in most states.

Ask users whose networks relied heavily on any of several other common carriers who have exited the telecommunications services industry or who have drastically changed their lines of business recently.

The key here is to ask these users and others what they learned from their previous adventures before making a decision about which course of action your company will pursue. ⊿

CCITT from **page 13**

not sure how long it will take for the networks to be implemented on a nationwide basis. Users must realize that a lot of money has been invested in existing equipment. There are a lot of terminals at the customers' premises, and users will not throw them away even if there are technical and economic benefits. There will be a transition time.

Now that ISDN field trials have begun, do you have any advice for users?

Users may want to take a wait-and-see position. The purpose of an ISDN trial is to make sure the equipment works. There is always a risk when something is tried for the first time. Also, a user is not al-

ways concerned with the equipment's technical performance. Cost is more important to the users, so vendors will have to tell the customer what ISDN really costs. In the technical sense, I expect ISDN to be successful.

Are the ISDN field trials here in the U.S. as far along as those in other countries?

In all industrialized countries, the status of ISDN is comparable. Some countries may be a bit ahead of others, but there are no major differences. This is not suprising because the trials use the same technology. In Europe, most countries have field trials set for 1987 and 1988.

Could you explain how the CCITT

is structured?

Each country that is a member of the United Nations can be represented in the CCITT. The organization is divided into 15 study groups, each responsible for an area of telecommunications. One group may establish standards for tariffs, another may work with network performance, and a third may deal with ISDN.

Each group develops sets of standards for its area, and these recommendations must be unanimously approved. Study group members [include] technical experts such as representatives from long-distance carriers or user companies. There is no limit to the number of experts that each country can have on a study group.

For example, there may be representatives from AT&T, MCI [Communications Corp.] and US Sprint [Communications Co.] on one committee. Every four years, all the study groups meet in plenary assembly, where work of the previous four years is reviewed. At these assemblages, standards recommendations are approved and objectives for the next four years are established.

> **❝** *In all industrialized countries, the status of ISDN is comparable. Some may be a bit ahead, but there are no major differences.* **❞**

Are four years required for all standards?

They can be changed in less time. Everyone understands that standards are not as stable as they once were. For example, the standards for coaxial cable have remained basically the same for more than 15 years.

Standards for optical fiber have not been very stable because that technology is rapidly evolving. Special procedures enable a group to approve a standard in the period between the plenary sessions.

How has deregulation changed the CCITT?

Deregulation has made the organization much more important. Previously, there was a telephone, a telex and some guys behind a curtain who made sure that items functioned. Now, telecommunications has spread to all aspects of a business.

New technology offers companies opportunities to develop new solutions.

"As a consultant, I must make good recommendations to my clients on which products will enhance their networks. And, I want to be sure the vendors of these products have a future. Network World gives me a good sense of vendor viability."

Ron Orazine is a senior consultant involved in both data and telecommunications at Network Systems Design in Waltham, MA. He consults with large-scale communications users on the analysis and design of networks, as well as the design and selection of PBX systems. He is also the author of the firm's monthly client newsletter.

As a consultant to many leading communications users, Ron finds *Network World's* user-oriented editorial extremely helpful in his work. "In an industry that's churning as fast as telecommunications, it's hard to know what companies are going to survive," says Ron. "I must make good recommendations to my clients on which products will enhance their networks. And, I want to be sure the vendors of these products have a future. *Network World* gives me a good sense of vendor viability," he adds.

"*Network World* covers breakthroughs in the market, and the contracts section keeps me informed on how vendors are doing," Ron explains. "The articles are presented in a unique way, and the writing style is easy to comprehend." And, according to Ron, *Network World* gives readers all the news on the hottest topics. "I read every issue. Articles like 'AT&T Takes Aim at Centrex' give me an understanding of market strategies. And, there's been great coverage of networking, T-1s, leading edge installations, and office automation," he explains.

Network World is the first and only newsweekly written specifically for communications users. Over 60,000 purchase-involved subscribers, like Ron Orazine, look to *Network World* for the information that can help them—and their companies— stay ahead. If you market communications products and services, there's no better place to reach a powerful audience of communications buyers. Contact your local *Network World* sales representative and reserve space for your ad today.

NETWORK WORLD

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"We operate in four states. Used to be five if you count the state of confusion."

—A Network Manager commenting on his state of affairs.

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Managers understand that emerging technologies can no longer be left in the hands of a few people. Standards have to be established. A user can't interconnect devices unless the vendors agree how they should be connected.

In Europe, it is difficult, if not impossible, to connect terminal equipment to the public network because there were never any standard interfaces developed. Customers want to ensure that similar situations do not occur.

Every country is supposed to agree to CCITT standards, yet there is one standard for T-1 in North America and another for the rest of the world. How do you explain this?
The outcome of the T-1 standards work ranks as one of the biggest disappointments of the 20 years I have been involved with the CCITT.

We are trying to avoid a similar situation. The decisions for instituting two standards were reached more than 15 years ago before unanimous agreement was needed for all CCITT standards.

The T-1 work was one reason we instituted the new rule. There are ways to connect the two types of T-1 multiplexers. But these methods are not elegant, cost extra money and degrade quality. In this situation, we are paying for sins committed more than 15 years ago.

Do the Iron Curtain countries take part in the CCITT?
Work at CCITT has never been impeded by political developments because all members try to separate political considerations from technical work. Sometimes, those issues do come up. For example, in the late 1950s there was a lot of discussion about issuing East Germany a country code for its telephone network. Such problems, however, are very rare.

What is the current state of telecommunications in the Soviet Union?
It is difficult to say because we have little information about what they are doing. Telecommunications does not play as strong a role in the national economy of the Soviet Union as it does in other countries. The government has been concentrating on other areas because its priorities are different from those in Western countries. First, the Soviet Union has to de-

> « The outcome of the T-1 standards work ranks as one of the biggest disappointments of the 20 years I have been involved with the CCITT. »

> « Telecom does not play as strong a role in the national economy of the Soviet Union as it does in other countries. »

velop a solid infrastructure with suitable roads and other such items. They are catching up in that area and now agree that telecommunications is not a luxury but an important part of such an infrastructure.

Without telecommunications, you can't develop the economy and a company cannot communicate with its factory or customers. The Soviets are understanding that benefit more and more. We are seeing changes in their policies.

How closely does the CCITT work with other standards organizations such as the International Standards Organization?
We try to cooperate closely with these types of groups because it is now impossible to draw demarcation lines between these standards bodies. If the ISO develops a solid standard, we may take it, and vice versa. Borders between the groups must be flexible because a lot of work overlaps.◪

DATA DELIVERY

▶ WIDE-AREA NETWORKS

Banks tie ATM nets together

BY JIM BROWN
New Products Editor

WALLINGFORD, Conn. — A recent agreement to tie the automated teller machines (ATM) of five major New England banks into an existing ATM network, based here, is expected to more than double the size of the net and eventually give member banks an opportunity to branch out into retail point-of-sale applications.
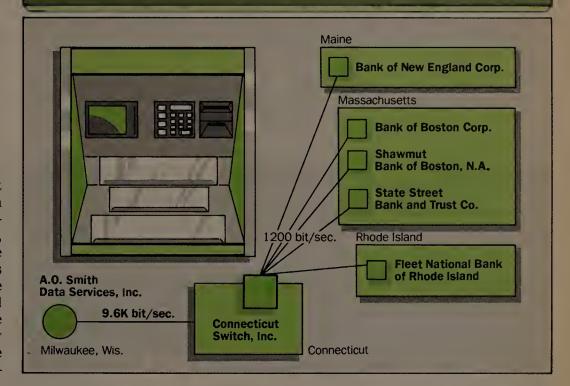
Massachusetts-based Bank of Boston Corp., the Bank of New England Corp., the Shawmut Bank of Boston, N.A. and the State Street Bank and Trust Co., along with the Fleet National Bank of Rhode Island, reached agreement with Connecticut Switch, Inc., operators of the Yankee 24 ATM network, to create the New England-wide net.

Connecticut Switch was spawned three years ago by eight Connecticut banks and has grown to support 123 financial institutions. Funded by its member banks, its staff of six oversees the Yankee 24 network, which today comprises more than 700 ATMs. Initially, the five new member banks will add approximately 750 ATMs to the system, which is expected to grow to nearly 1,800 ATMs within the next year. With the five New England banks, the Yankee 24 cardholder base is expected to expand from between 1.5 and 1.75 million to about 3.25 million.

The accord was struck as the five banks were discussing plans to create their own ATM data switching center and Connecticut Switch was looking to expand its operation beyond state borders, said Dick Symington, Connecticut Switch's director of operations.

Yankee 24 branches out in New England

Maine — Bank of New England Corp.
Massachusetts — Bank of Boston Corp.; Shawmut Bank of Boston, N.A.; State Street Bank and Trust Co.
1200 bit/sec.   Rhode Island — Fleet National Bank of Rhode Island
A.O. Smith Data Services, Inc.
9.6K bit/sec.   Connecticut Switch, Inc.   Connecticut
Milwaukee, Wis.

The move pits Yankee 24 against the extensive Massachusetts-based BayBanks, Inc. Express 24 network of roughly 1,200 ATMs throughout New England. BayBanks recently joined the New York Money Exchange network, an ATM network of New York, New Jersey and Southern Connecticut banks. Both Yankee 24 and the New York Money Exchange networks use Milwaukee-based A.O. Smith Data Services, Inc. as their hub.

"At some point in the future, it may be economically feasible to bring the processing in-house," Symington said of the service bureau work. "However, it's much simpler to do it under a service bureau basis and pay by the drink as opposed to spending all that cash up front on what you think your mature volume will be."

Once the five banks have been added to the network, Yankee 24 cardholders will be able to complete transactions at ATMs throughout New England. A cardholder's request for a withdrawal, for example, is sent to the host processor directly linked to the ATM. If that processor does not recognize the cardholder as a bank customer, the transaction is passed onto one of four Yankee sites.

Hosts are linked to four Yankee 24 multiplexer sites in Connecticut over 1,200 bit/sec analog leased lines. Three multiplexer sites use AT&T Dataphone time division multiplexers, which condense four 1,200 bit/sec lines into one 9.6K bit/sec dedicated analog link to Milwaukee. Another site uses a statistical multiplexer made by Mansfield, Mass.-based Codex Corp., which condenses the remaining eight 1,200 bit/sec lines into a 9.6K bit/sec link. Accommodating the five newest Yankee 24 members will require two more multiplexer sites. Yankee 24 does not do any processing; it multiplexes the data and sends it to A.O. Smith.

There are 20 different host systems in the Yankee 24 network. Each of the 20 processors now on the network transmits to A.O. Smith using the banks' implementations of IBM's Binary Synchronous Communications (BSC) protocol. A.O. Smith converts the BSC

DATA DIALOGUE
PAUL KORZENIOWSKI

Slice through the jungle of T-1 hype

Currently, T-1 represents the most active segment of the communications equipment market. About 30 companies are frantically vying for a large slice of the T-1 pie. In a few years, that number is expected to dwindle to half a dozen.

Thus far, vendors have attempted to capture attention and market share by touting the technical features of their products. For close to two years, users have been treated to one-upmanship as vendors have hung their hats on one or two features that may have separated their products from others.

The hoopla will do little to separate winners and losers. In fact, all the idle chatter has hurt the market. The hue and cry has confused many customers, who are putting off purchase decisions because they are not sure which features are important.

If customers took a close look at all the touted features, they would discover that the current batch of products contains more features than even the sophisti-

cated user could ever require.

Eventually, customers will knife their way through the hype, and other issues will become more important. Service and sales, not options and features, will determine who will remain in business when the shakeout arrives. Only vendors with large, experienced sales and service teams will survive.

Vendors are trying a number of different approaches to supply these teams. Many T-1 vendors are start-up companies without the dollars to support a large sales and support team. They have looked to OEM agreements as solutions to their sales and service problems.

The results of such agreements have been very poor. In 1985, General DataComm Industries, Inc. signed a $40 million deal with Cohesive Network Corp., a start-up backed by millions of dollars in venture capital. On the surface, the deal made sense. Cohesive hoped that General DataComm's experienced sales team could sell a lot

of Cohesive boxes. At the time, General DataComm lacked a high-end T-1 product, and the Cohesive product could help General DataComm compete with traditional competitors. The deal was terminated when Digital Communications Associates, Inc. (DCA) purchased Cohesive last summer.

A chief problem with such deals is that distributors' salesmen often have a hard time warming up to another company's product. Often, the commission structure is lower for such a product. Consequently, salesmen will push other products harder.

Also, a distributor often looks at a product such as the Cohesive line as a stopgap. Most vendors prefer to build their own products. When caught in a bind, they fill gaps in their line with technically elegant products from small companies. Infotron Corp. had an OEM agreement with Datatel, Inc. for a low-end T-1 multiplexer. The

ATM from **page 19**

protocols received from one bank to the protocols used by another bank involved in the transaction.

A.O. Smith searches cardholder records and establishes a connection with the bank that owns the card. The company uses a Tandem Computers, Inc. NonStop TXP minicomputer to run its on-line transaction processing and switching software, called Connex.

The card-owning bank searches its records to ensure the cardholder has enough funds in an account to cover the withdrawal and sends a transaction approval message through A.O. Smith to the terminal.

The analog telecommunications facilities have been in place since the Yankee 24 network first went on line. "Over the last six months or so we've been spending a lot of time looking at telecommunications alternatives to reconfigure the network," Symington said. "As traffic grows, I could conceivably see us doing something in packet switching or in a digital network."

All banks on the network, however, are required to conform to A.O. Smith's Format Eight application message structure and to encrypt at least the cardholder's personal identification number throughout the system. At the end of each business day, A.O. Smith off-loads the daily transactions from the Tandem to an IBM mainframe running a funds settlement package. Settlement reports are forwarded to the Federal Reserve Bank system, where each member bank holds an account that is tapped to settle transactions handled by another bank.

Member banks are charged 50 cents each time one of their cards is used in an ATM owned by another member bank. That fee is designed to cover the cost of processing the transaction and is distributed between A.O. Smith, Connecticut Switch and the bank hosting the transaction. In addition, Connecticut Switch bills each member bank for an equal share of the communications line charges.

A.O. Smith prepares billing documents, but Connecticut Switch sends the bills, collects the receipts and distributes the payments.

Symington added that Connecticut Switch may someday go after retail point-of-sale networking. "Retailers don't honor the same type of state boundaries as banks do, so a New England-wide network makes it much more attractive to do some of those other electronic funds transfer functions such as credit authorization and inventory control," he said. ▨

T-1 from **page 19**

agreement was terminated as Infotron developed its own line of T-1 multiplexers. The company has an OEM agreement with Network Switching Systems, Inc. for a high-end device with shipments scheduled for next June. Despite the agreement, Infotron is developing its own high-end T-1 products.

Even if a distributor has no intention of developing a competing product, other problems may arise. Occasionally, the OEM and the supplier may call on the same customer. Users can become angry when two salesmen try to sell them the same product.

Direct sales seems to be a better approach. If a company has a direct sales force, it should have a direct support staff as well. Users don't appreciate losing sight of a vendor right after a sale.

One reason Timeplex, Inc. has been able to capture a large part of the T-1 multiplexer market is its strong sales and service team. The company has more than 200 experienced people on the streets pushing products and holding customers' hands.
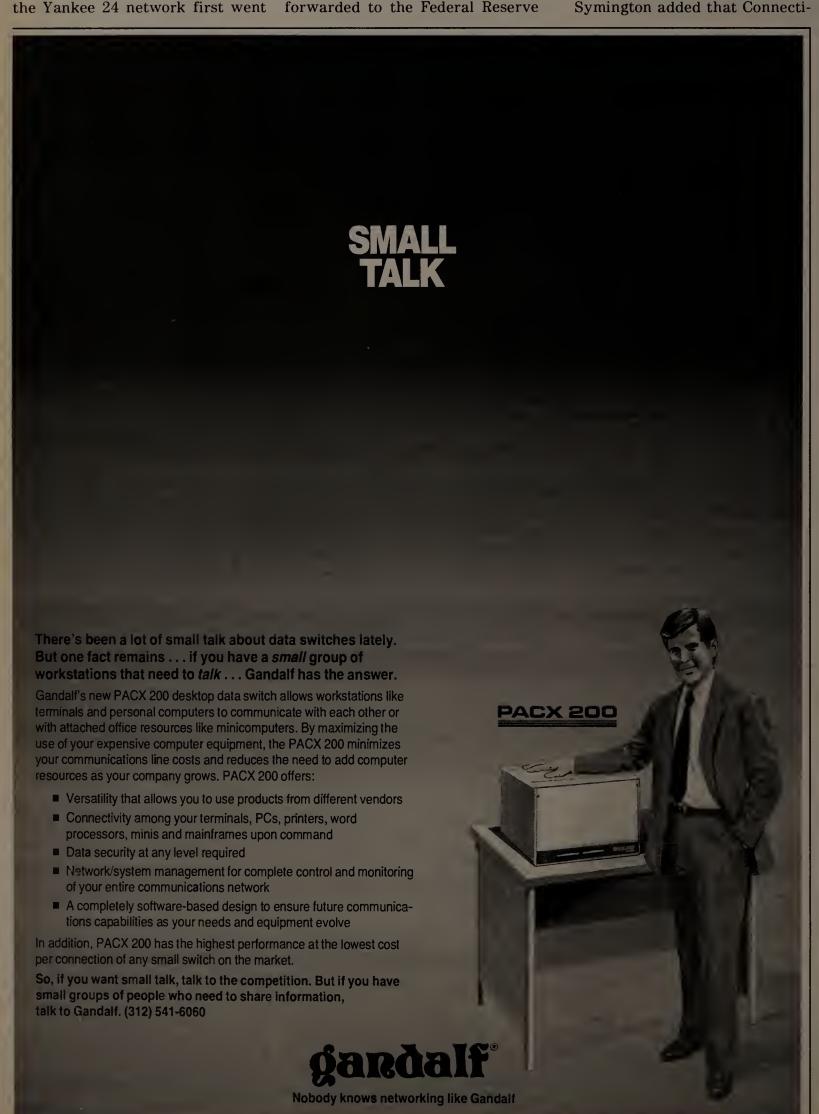
Network Equipment Technologies, a start-up in Redwood City, Calif., has close to half of its 250 employees working in sales and service. The company is preparing for a public offering, and the extra money may be used to continue the buildup of the company's direct sales and support staff.

One reason Cohesive agreed to the DCA acquisition was the lure of having the DCA sales force selling Cohesive products. The company had only eight salesmen before the acquisition; that number swelled to more than 50 as the companies combined their sales effort. Similarly rapid growth was seen in the support staff.

General DataComm and Infotron both have the sales and support staff to be major players in the T-1 market. Once they broaden their lines with their own products, they may be able to gain market share.

Small, start-up one-product companies are going to have trouble keeping in step with the experienced players. These companies are taking steps to raise the money needed to start a direct sales and support staff. Some companies are raising additional venture capital; others are planning a public offering.

Many of these steps are planned for next year. Users worried about a vendor's long-term viability should take a close look at a company's existing and planned support staff. This staff, not a product's features, supplies the best indicator of the eventual winners and losers in the T-1 market. ▨
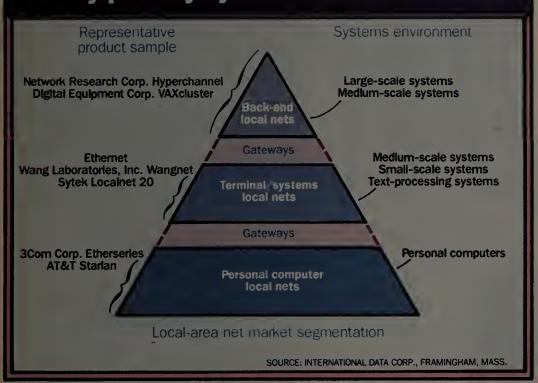
LOCAL NETWORKING

Smartcom II enhanced

Hayes Microcomputer Products, Inc. has enhanced its Smartcom II communications software to enable IBM Personal Computers hooked to an IBM PC Network to communicate with microcomputers attached to an IBM Token-Ring Network. Smartcom II for the IBM PC Network costs $599.

Segmentation of local network market by primary systems environment

Local-area net market segmentation

SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

LANMARKS
JOHN DIX

Local nets: Much ado about not much, for now

Despite the furor of media, marketing and trade circuit chatter about local networking, the technology is still in its infancy, gauging by user acceptance.

Consider these figures culled from various research sources:
■ Of the roughly 19 million personal computers installed today, only 5% are networked.
■ Less than 3% of the 32 million terminals that are installed worldwide are connected to local nets.
■ Considered together, roughly 4% of the 51 million installed end-user workstations are attached to local networks.

Said another way, 13 years after the invention of Ethernet, 95% of the users sitting in front of workstations know more about local networking through trade press reports than actual experience. While this barometer shows change to be a slow process, it also tells a story of opportunity.

It is true that Ethernet was

> *Less than 3% of terminals are connected to local nets.*

invented in May 1973 by Bob Metcalfe, now chairman of netmaker 3Com Corp., but the idea didn't really catch on until Digital Equipment Corp., Intel Corp. and Xerox Corp. got together behind the idea and published the Ethernet Blue Book specifications in September 1980.

Ethernet, then, is only six years old, but a graybeard compared with IBM's two-year-old Token-Ring Network.

The industry may indeed be beyond its technical stage and settled into a mid-life marketing stage, but there is still much to be learned.

The impetus is there.

Consider that, by some estimates, 30% of all business personal computers are used less than two hours per week. Networking will enable users to capitalize on the investment in these machines by making them more useful and will increase user productivity in the process.

▶ IBM CONNECTIONS

LANs linked to IBM mini line

Asher, AST, CXI gateways support access from NETBIOS local networks.

BY MARY PETROSKY
West Coast Correspondent

Filling a need IBM has only partially addressed, Asher Technologies, Inc., AST Research, Inc. and CXI, Inc. this fall rolled out gateway products that link IBM Network Basic I/O System-compatible local-area networks to IBM's System/34, System/36 and System/38 minicomputers.

Although IBM announced a connection between its Token-Ring Network and the System/36 last spring, the product is not slated for delivery until the second quarter of 1987. And Big Blue has not said it will support the System/34 or /38 with the Token-Ring, according to a company spokeswoman.

In addition to supporting local nets from a wide range of vendors, Asher, AST and CXI each allow a nondedicated IBM Personal Computer or compatible to function as the gateway. As announced, IBM's System/36 to Token-Ring Network gateway requires a dedicated IBM Personal Computer AT operating as a local-area network communications controller.

All three of these gateway vendors offer some type of file transfer capability in addition to terminal and printer emulation. AST goes the farthest by supplying its standard file transfer package with its gateway. CXI charges $150 per user for its optional file transfer facility, while Asher has opted to support Decisionlink, a third-party package made by Techland Systems, Inc. in New York.

By taking advantage of IBM's PC Support programs for the System/36 and /38, which provide personal computers with virtual disk and printer capabilities, the three gateway vendors are able to, in effect, turn the minis into file servers. The virtual capabilities make storage on the System/36 and /38 appear as storage on the personal computer. Both AST and CXI have tested their gateways with the PC Support programs, and Asher is about to begin testing, according to Michael Lampl, a member of Asher's engineering support staff.

Last April, IBM announced it
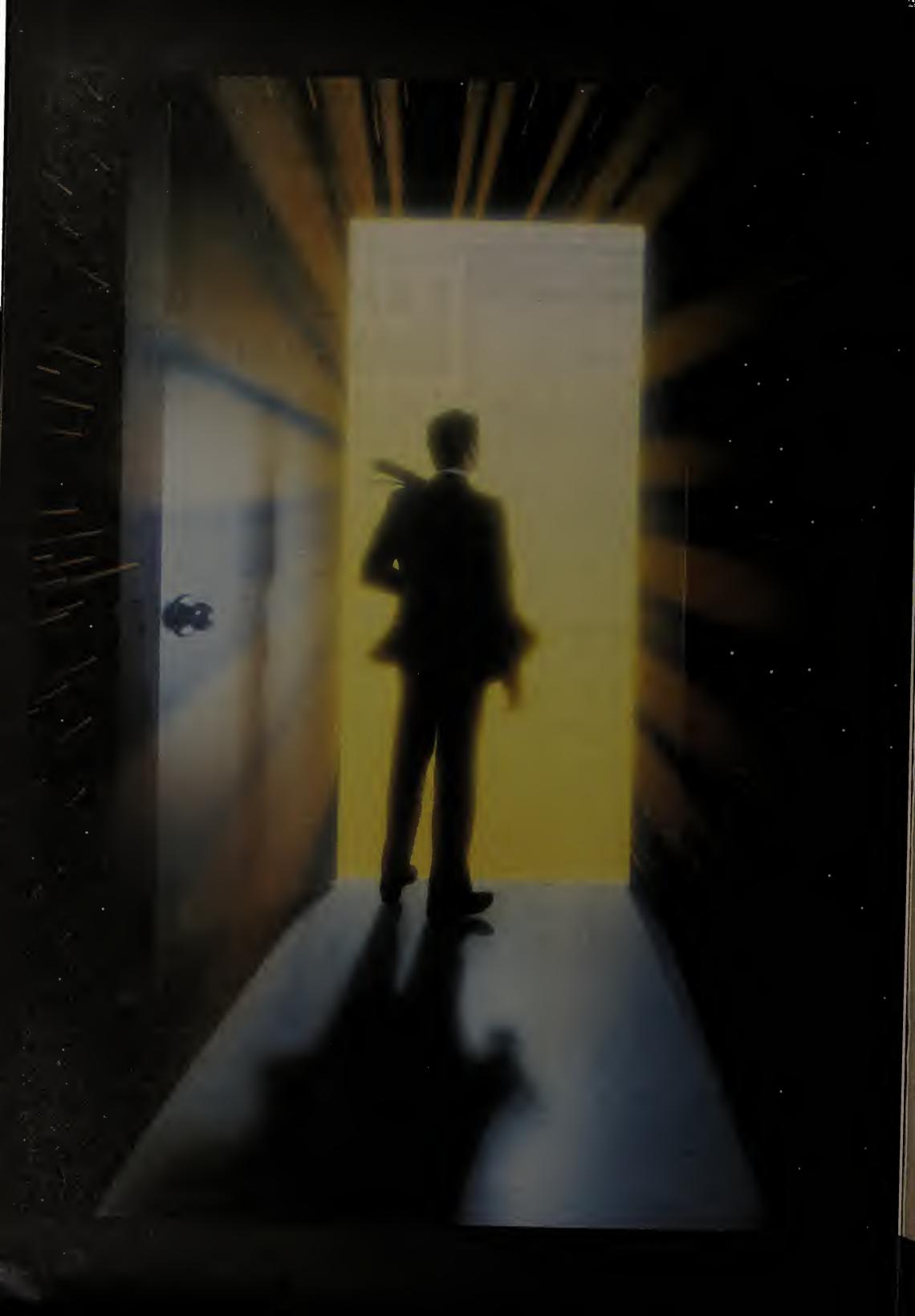
would enhance the PC Support/36 program to support networked personal computers. Big Blue also announced the optional PC Support/36 Workstation Feature, which will be downloaded from the System/36 to provide networked micros with terminal and printer emulation capabilities. These programs are also slated for delivery in the second quarter of 1987.

The first to deliver a gateway, Asher is currently selling its Mini-Link Gateway for $2,290, which includes an interface card and software. Users of Asher's MiniLink product for stand-alone personal computers can upgrade to the gateway version for $1,395.

Asher's gateway can support up to seven terminal and printer sessions. Up to four gateways have been used on a single network, and the company believes up to six can be used, said Lampl.

AST followed on Asher's heels with the announcement of the AST-5250/Gateway, due to ship this month. AST is offering two interface cards, one for direct attachment via twin-axial cable, and one for remote communication. The remote connection supports emulation of the 5250 Model 12 controller, rather than 5294 emulation, because the latter is not supported on the System/34, said Michael Krieger, senior product marketing manager. Each AST gateway also distributes up to seven terminal/printer sessions, but only three gateways can be supported on a single local net. Both gateways, the 5251-11 and the 5251-12, are priced at $1,995.

CXI most recently entered the market with a remote connection, the PCOX/GW-5250, which will be available in January. The CXI gateway emulates the IBM 5251 Model 12, and provides up to nine terminal/printer sessions. There is no limit, technically, to the number of gateways a single network can support, said Tom Williams, vice-president of marketing. The gateway is priced at $1,725, which includes support for four personal computers on the network. Software for each additional network workstation is $200. ◪

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COMMUNICATIONS MANAGER

▶ PROFILE

Kodak's MAP missionary

BY PAUL KORZENIOWSKI
Senior Editor

ROCHESTER, N.Y. — Chuck Gardner holds down two jobs, and he does so with his boss's blessing.

Gardner splits his workweek between disseminating information on industry standards to Eastman Kodak Co. managers and acting as a missionary for the Manufacturing Automation Protocol. His double career is illustrated on his business card. It lists two titles: corporate coordinator of systems standards at Kodak and chairman of the MAP/Technical and Office Protocol Steering Committee, part of the MAP/TOP Users Group.

Gardner probably never foresaw his standards-related responsibilities when the Montana native packed up his bags and moved here 24 years ago. With a bachelor's degree in mathematics and a Ph.D. in statistics, Gardner envisioned a career as a quality control engineer.

Shortly after he began working in that field, he was given responsibility for overseeing computers and applications at Kodak. As the technology changed, Gardner became more and more involved in running the networks that linked those computers.

During his career, Gardner has supervised the installation of a slew of manufacturing networks at Kodak plants scattered throughout the country. Slightly more than a month ago, he helped the company get its first MAP network running. The network, which tests and demonstrates MAP capabilities, links an IBM 4381 and two Digital Equipment Corp. VAX systems.

It is not an accident that both Gardner and Kodak are on the cutting edge of a brave new manufacturing world. Before MAP emerged, Gardner's boss, William Blaisdell, director of telecommunications at Kodak, was actively studying ways to employ communications standards to help manufacturers build more efficient networks.

Kodak was one of the first companies to throw its weight behind MAP. Gardner was elected the first MAP/TOP Steering Committee chairman and has held the position for three years. During that time, membership in the MAP/TOP Users Group has grown rapidly. International MAP/TOP users groups are now operating in Europe, Australia and Japan.

Helping to oversee an embryonic organization as well as contributing to the company that signs one's paycheck can be quite demanding. "One can't expect to work 40 hours a week and do both jobs," Gardner said.

He has been forced to make some sacrifices. MAP's rapid growth has meant more travel. "I'm on the road close to two weeks every month," Gardner said.

The constant travel has strained Gardner's personal life. "My wife understands that the travel is part of my job, but it isn't easy when I have to be on the road during a holiday," he said.

But both Gardner's company and his wife support him in his second job. Before Gardner attended his first MAP meeting, Blaisdell had sought and received approval from upper management for Kodak to make a significant commitment to MAP.

"Upper managers in manufacturing are well-versed in the problems that MAP is trying to solve," Gardner said. "We didn't have to spend a lot of time convincing them that a MAP investment could pay big dividends."

The MAP work has enhanced Gardner's and Blaisdell's stature within the giant company. Last year, Blaisdell, who had managed an engineering division, was given responsibility for all of Kodak's telecommunications systems. Gardner's responsibilities were expanded to include Integrated Services Digital Network as well as MAP issues.

The company is evaluating the establishment of its own conformance testing laboratory, and Gardner would be a likely candidate to head up that project.

Gardner wouldn't mind shifting some of his attention back to Kodak. "I am always on the lookout and hope to see my MAP successor on the horizon," he said. "Such a change would enable me to spend more time applying what I have learned from my involvement with MAP. Domestically, a list of unfinished items has piled up in the last three years. Those items should be taken care of."◰

GUIDELINES
ERIC SCHMALL

Avoiding bureaucratic rigor mortis

During the past several years, communications managers have built purposeful, logical organizations in pursuit of specific goals. A sociologist would dispassionately describe these units as bureaucracies. Most people flinch at that term, however, as the popular connotation carries so much negative weight.

This dual meaning indicates an important issue for communications professionals to consider. When does one's department, or bureaucracy in the good sense, begin to deteriorate into a bureaucracy in the bad sense? What are the warning signs? What can be done to prevent such a misfortune?

Three major symptoms help indicate when an organization has begun to take on the pernicious characteristics of decline: rigidity, institutional indifference to users and an overwhelming mania for details and facts.

Rigidity closes off a department from change, creativity or new ideas that often come from users. Institutional indifference reflects this rigidity in a smug attitude toward users. As the organization loses its way and forgets its mission, there is a marked internal demand for more and more meaningless facts

Schmall is network systems manager for an insurance holding company.

and statistics that do nothing but detract from the overall effort of the organization.

Organizations, like living organisms, tend to become increasingly rigid and inflexible with age. As a department matures, change becomes more difficult to accept and incorporate. Without a great deal of effort, innovative approaches to solving problems can no longer be integrated.

Creativity is often punished because it threatens entrenched procedures, structures and personalities. In its most advanced stage, the organization resembles a fossil.

No special requests for services are tolerated. Procedures, rules for changes, additions and deletions are codified in a complex, frustrating web of forms, sign-off sheets and rituals that must be obeyed. Appeals to reason meet with no particular success in this environment because policies and procedures are enshrined as the only guides to action. Such a fondness for strict observance of rules makes life much easier for the typical bureaucrat because it effectively eliminates the need to think.
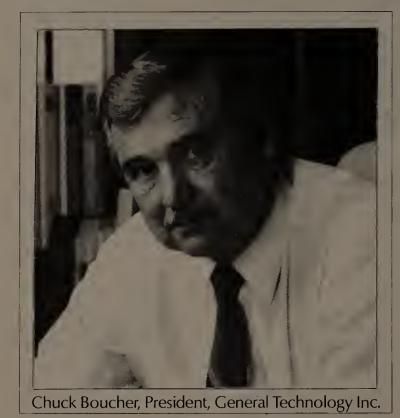
Protected against change and challenges to change, the organization now has time to allow more meaningless activities to gain primary importance. Chief among these is the passion for facts and figures.

None of this is to say that

managers should abandon organizational structures, throw out procedures or eliminate management reports, for any of these moves would unleash chaotic forces. Instead, these admonitions call for careful judgment between rigidity and flexibility, procedural dogma, allowances for change and management tracking vs. unbridled report generation.

In order to ensure that the organization is not sinking into the darkness of the bureaucratic abyss, the communications manager has to assess honestly several aspects of his unit's performance. Does the department accept change easily? Does it reward or punish creativity? How easily can user requests be accommodated?

Despite the relative youth of most communications departments, it is still easy for them to fall victim to the sclerotic effects of bureaucratic age. In most cases, however, the effects develop slowly, almost unnoticed, as the organization strives to survive. Because the dynamics of the communications industry demand creative and open environments in order to provide the most efficient methods for information transfer, it is especially tragic for fledgling communications departments to succumb to the numbing effects of traditional bureaucratic patterns.

NEW PRODUCTS AND SERVICES

See inside for:
▶ AT&T net management package upgraded
▶ Trio of asynchronous modems

▶ LOCAL NET SOFTWARE

Conetic offers E-Mail LAN link

Gateway software packages work with Higgins Software, 3Com's 3+Mail.
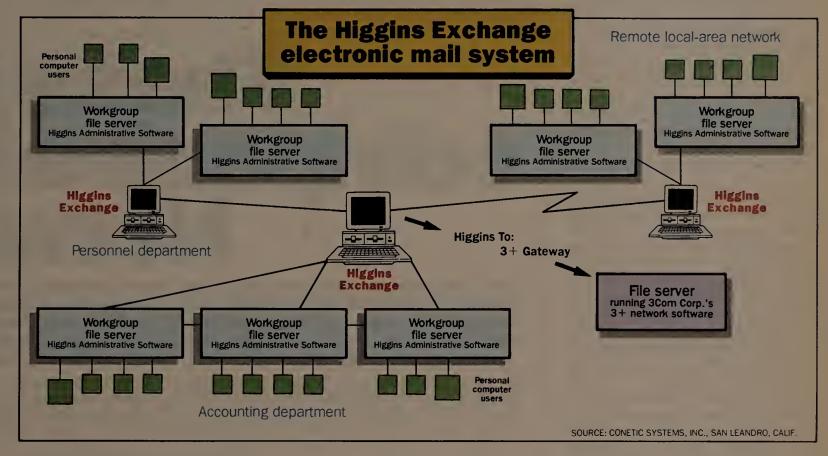
BY JIM BROWN
New Products Editor

SAN LEANDRO, Calif. — Two software packages that link local-area network electronic mail applications were announced by Conetic Systems, Inc.

Higgins Exchange links the E-Mail facilities of the company's Higgins Administrative Software package, which resides on a file server. The second package, Higgins To:3+, supplies a gateway between the Higgins Administrative Software package and 3Com Corp.'s 3+Mail E-mail program.

Higgins Exchange links file servers running the Higgins Administrative Software package within a corporate local-area network as well as on remote local nets.

Running on an IBM Personal Computer, Higgins Exchange polls the E-mail facilities of Higgins Administrative Software running on up to seven file servers. "You don't have to totally dedicate a PC to doing this, but based on volume, you might want to," said Howard Case, vice-president of sales and marketing at Conetic Systems.


The Higgins Exchange electronic mail system

SOURCE: CONETIC SYSTEMS, INC., SAN LEANDRO, CALIF.

Using the personal computer's local storage, Higgins Exchange picks up mail destined for personal computers attached to other file servers and drops off any mail earmarked for personal computers attached to that file server. "Higgins Exchange's job in life is to act as the transport and connectivity vehicle to tie work groups together," Case said.

Any mail undelivered at the conclusion of its 7-file server polling operation must be exported to another

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▶ FASTCOMM DATA CORP.

Turbo modem debuts

RESTON, Va. — Fastcomm Data Corp. introduced an add-on board that allows its Fastcomm 2496 and Fastcomm 9600 modems to operate at speeds up to 19.2K bit/sec.

The half-duplex Fastcomm Turbo modem employs quadrature amplitude modulation and operates over 2-wire or 4-wire dial-up or private lines. It uses a cyclic redundancy check error-checking scheme and supports the Hayes Microcomputer Products, Inc. AT Command Set.

The Turbo modem is designed for asynchronous uni-directional applications such as file transfers in a micro-to-mainframe link, the firm said.

With a Turbo board installed, the Fastcomm 9600 modem supports transmission speeds of 19.2K bit/sec, with fallback speeds of 9.6K bit/sec, 7.2K bit/

sec and 4.8K bit/sec. A Turbo board installed in a Fastcomm 2496 modem will support Hayes-compatible speeds of 2,400 bit/sec, 1,200 bit/sec and 300 bit/sec as well as speeds ranging from 4.8K bit/sec to 19.2K bit/sec. To operate at the 19.2K bit/sec speed, two Fastcomm Turbo boards are required.

A Fastcomm 2496 Turbo is priced at $1,099, and a Fastcomm 9600 Turbo is priced at $1,019. Current users of the Fastcomm 2496 and Fastcomm 9600 modems can upgrade to a Turbo board for $100.

A board-based Fastcomm 2496B Turbo is priced at $1,079, and a board-based Fastcomm 9600B Turbo costs $999.

Current users of the Fastcomm 2496 and Fastcomm 9600 modems can upgrade to a Turbo board for $100.

▶ T-1 MULTIPLEXERS

Itron uncloaks mux with voice/data might

CHERRY HILL, N.J. — The Itron division of Infotron Systems Corp. unveiled its Commander 1.5 T-1 multiplexer.

Operating at a T-1 speed of 1.544M bit/sec, the Commander 1.5 supports up to 64 channels for voice or data applications. Channels can be added to the device in increments of four.

The device works with either RS-422 or V.35 interfaces and will support a set of three 4-port cards. One card will support synchronous and asynchronous data transmissions of up to 19.2K bit/sec. The second will support multiplexed synchronous data transmissions at speeds from 56K bit/sec to 1.024M bit/sec. The third card will support voice transmissions through a private branch exchange.

The device employs both pulse code modulation and adaptive differential pulse code modulation. The firm also said the device is

compatible with AT&T's Accunet T1.5 digital data service and meets D4 framing and Extended Super-framing Format standards.

Internal software is used to configure the device and to perform a full slate of fault isolation diagnostic routines, the firm said. A supervisor port supports the connection of a teletypewriter-compatible terminal to the unit. The terminal can be used to down-line load configuration parameters and display end-to-end diagnostic test results.

The device can be configured by groups of channels, or all channels can be configured to operate uniformly.

The basic Commander 1.5 unit, which includes a chassis with power and logic cards, costs $5,300. A redundant power and logic option, which reduces the number of channels the device will support, costs $8,500. The port cards are priced at about $2,000 each.∎

Products & Services

■ Network management package upgrade

AT&T's Data Systems division upgraded its System Controller network management package, which monitors large networks equipped with AT&T's Dataphone II modems, digital data service units and multiplexers.

The **System Controller 400** (SC/400) package consists of an AT&T 3B2 Model 400 minicomputer with four terminals and network management software. Terminal emulation makes an AT&T PC 6300 or PC 6300 Plus personal computer look like a terminal to the 3B2 mini.

The product features a number of enhancements from the company's SC/300 package, such as an increase in the number of control channels the system will support from four to eight, a doubling of monitored circuits from 1,024 to 2,048, support for 11 simultaneous users rather than the four previously supported and support for up to 60 network user profiles instead of the 20 supported by the SC/300.

The SC/400 also supports 750 network map screens (some 500 more than the previous version) and will write up to 2,000 trouble tickets (twice as many as the SC/300), which pinpoint network devices that are experiencing a problem. The SC/400 will keep track of 25,000 historical fault records, some 10,000 more than the SC/300.

The SC/400 package supports all four layers of AT&T's network management and diagnostics scheme. The product enables network administrators to configure and monitor remote devices in AT&T's Dataphone II customer-managed modular private networks. Those point-to-point or multipoint networks could comprise switched and private-line analog modems operating between 1,200 bit/sec and 14.4K bit/sec, digital data service units used with AT&T's Accunet Switched 56 Service, T-1 multiplexers operating over AT&T's Accunet T1.5 service as well as AT&T Dataphone multiplexers and Dataphone Series 700 multiplexers.

The SC/400 displays network maps on color graphics terminals and will report alarm conditions on screen. The package features a trouble-reporting function, and administrators are able to schedule automatic remote test routines. It also allows each unit to be configured on the net from a central site.

Diagnostic and configuration data are transferred between the transmission units and the SC/400 over control channels. Diagnostics received are entered into a data base on the 3B2 minicomputer where administrators can track historical problem reports and operation information.

The system is priced between $95,000 and $100,000 and includes a 3B2 Model 400 minicomputer, dual 30M-byte Winchester disk drives, 4M bytes of main memory and four terminals.

AT&T Data Systems division, 100 Southgate Pkwy., Morristown, N.J. 07960 (800) 247-1212 ext. 195.

■ Three asynchronous modems out

USRobotics, Inc. introduced a trio of asynchronous modems, including the Courier HST 9.6K bit/sec model reportedly capable of supporting both a 9.6K bit/sec and a 300 bit/sec channel.

The firm also announced the Courier 2400e, which adds the MNP Level 3 error-checking protocol to its 2,400 bit/sec Courier 2400, and unwrapped an entry-level 1,200 bit/sec model called the Sportster 1200.

Called the Courier HST for high-speed technology, the 9.6K bit/sec modem employs an asymmetrical frequency division technique for data transmission over voice-grade telephone lines. That technique, the firm says, allows the modem to use a proprietary USR-HST block-check error-control protocol when transmitting to another Courier HST at 9.6K bit/sec.

The $995 Courier HST operates in full-duplex at speeds of 9.6K bit/sec with fallback rates of 2,400 bit/sec, 1,200 bit/sec and 300 bit/sec. At its slower speeds, the Courier HST employs MNP error-checking protocol Levels 1 to 3.

Both the Courier HST and the Courier 2400e support the extended version of Hayes Microcomputer Products, Inc.'s AT Command Set. Both are also compatible with the CCITT V.22bis standard at 2,400 bit/sec, the Bell 212A standard at 1,200 bit/sec and the Bell 103 standard at 300 bit/sec.

The Courier HST disregards the V.32 echo-canceling standard but implements the V.32 trellis-coded

Products & Services

modulation scheme in addition to an automatic repeat request error-checking scheme, which the firm claimed is an enhancement to the MNP protocol.

The Courier HST's asymmetrical frequency division reportedly yields a high- and low-speed channel over the same telephone line. The high-speed 9.6K bit/sec channel can be used for downloading files, while the 300 bit/sec channel can be used for manual data entry and error-control coding.

The Courier HST and Courier 2400e include a nonvolatile random-access memory that stores

user-defined modem settings.

The Courier HST and the Courier 2400e employ a data flow control buffer that allows a data terminal to transmit at up to 19.2K bit/sec while the modem operates at normal rates. Data flow control typically frees up the terminal faster.

The Courier 2400e is priced at $699, while the Courier 2400 model with no error-checking dropped in price from $699 to $599. The Sportster 1200 costs $149 and is compatible with Bell 212A at 1,200 bit/sec and Bell 103 at 300 bit/sec.

USRobotics, Inc., 8100 North McCormick Blvd., Skokie, Ill. 60076.

■ Fault-tolerant communications server

Phoenix Technology, Inc. introduced a fault-tolerant communications server. The modular device serves as a local network attachment for four to 64 devices including terminals, personal computers, printers, host ports and modems.

The dual data link **PCS/1** automatically shifts traffic from a faulty data line to an operational line. When there is no data link fault, the installations can use the total network bandwidth of the two data links. The PCS/1 inter-

faces simultaneously to two networks using any media combination operating at up to 10M bit/sec, including baseband coaxial, optical and broadband coaxial cable. It also supports the Transmission Control Protocol/Internet Protocol.

The PCS/1 is reportedly compatible with all Bridge Communications, Inc. networking products including network management servers. A Phoenix-supplied upgrade kit turns a Bridge Communications CS/1 into a PCS/1.

A 32-port PCS/1 costs $17,950. The Bridge Communications CS/1 upgrade kit costs $4,495. Phoenix said it will issue an $895 discount for users turning in an existing Bridge Communications CS/1 data link card when purchasing the upgrade.

Phoenix Technology, Inc., P.O Box 636, Cupertino, Calif. 95015 (408) 255-4700. ⊡

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other Higgins Exchange package. This package links up to seven file servers in another department attached to the same local net or to a Higgins Exchange package attached to a remote local network.

Connections to the remote local net are made over either the network operating system's own internetworking facilities, such as 3Com's 3+Route, or over an asynchronous communications facility within Higgins Exchange. The Higgins Exchange asynchronous communications facility is used to link networks running the Higgins Administrative Software under dissimilar network operating systems. To reduce communications costs, the network administrator can configure the Higgins Exchange package to establish remote connections at defined intervals.

Higgins Exchange also delivers a networkwide naming and resource list to each server.

The Higgins To:3+ Gateway converts E-mail messages from the format used in the Higgins Administrative Software to the format used in 3+ Mail. The package works in conjunction with the Higgins Exchange package.

Case said Conetic Systems' current plans call for the development of gateways linking Higgins Exchange to E-mail facilities from other local-area network vendors as well as mainframe- and minicomputer-resident office management systems and public E-mail systems.

Both the Higgins Administrative Software and the Higgins Exchange packages operate with 3Com's 3+ network operating system, Novell Corp.'s Advanced NetWare operating system, AT&T's Starlan network, Ungermann-Bass, Inc.'s Net/One network and Banyan Systems, Inc.'s Vines operating system.

Higgins Exchange costs $1,895. The Higgins To:3+ Gateway will cost $395 and should be available in the first quarter of 1987. The Higgins Administrative Software package sells for $695 per server. ⊡
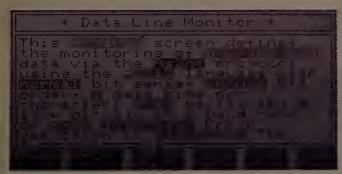
Opinions

Is the end near for SNA?

Is IBM backing away from Systems Network Architecture? It's unthinkable, of course.

Nevertheless, some strange things are going on inside Big Blue. The company is actively promoting its concept of Open Communications Architecture and is talking up a storm about supporting X.25, the International Standards Organization's (OSI) Open Systems Interconnect (OSI) and, increasingly, Integrated Services Digital Network in IBM networks. Word on the street is that IBM is going to import much of its product line and expertise in X.25 and OSI from Europe, and one of the main reasons IBM continues to bankroll money-losing Rolm is that the latter's technical people have promised to deliver ISDN compatibility with the next Rolm CBX.

All of this would not be particularly striking were it not for the 9370. The new downsized 4300 sports a line of integrated controllers that slot into the 9370 to support ASCII clusters and 802.3 local networks. Ethernet support was announced and this could potentially be extended to include Starlan-type systems. Moreover, with IBM's now well-known Device Attachment Control Units (DACU), the 9370 will support Transmission Control Protocol/Internet Protocol (TCP/IP)

Jeffery is managing director at the International Technology Group, a Palo Alto, Calif.-based research and consulting firm specializing in the IBM market.

and Decnet. IBM was demonstrating these capabilities at Dexpo this year under the arresting headline of "IBM Demonstrates IBM-DEC Connectivity."

A similar mix of proprietary and open components is also apparent in the 9370 operating system. IBM offers VM/SP, rather than its VM/CMS. In VM/SP, CMS is reduced to a subenvironment supporting the 3270 environment. The key environment is Transparent Services Access Facility (TSAF), which IBM says will support LU 6.2 networks. Right now, it doesn't, and it looks suspiciously like a version of VNet.

VNet is a non-SNA peer-to-peer VM network system that has been operating inside IBM since the 1970s. Back in 1983, IBM officials were touting it as the world's largest peer-to-peer network, with over 1,000 computer nodes. IBM hasn't said much about it since, but the gurus of IBM Research Division who developed it have admitted that it has continued to grow, is more expandable than SNA, and that it is more machine-efficient and flexible than the basically hierarchical SNA structure. As to why IBM has been promoting SNA all this time while using a more efficient peer-to-peer network in-house, the reader is invited to speculate.

The prospect of IBM setting up a new parallel network architecture is not unimaginable. This is, after all, the company that brought users Information Management System and Data Base 2 (DB2); DISOSS and Professional Office System; PC Network and To-

ken-Ring; System/370, System/38 and System/36; and of course MVS and VM.

The plot thickens further with Enhanced Connectivity Facilities (ECF), the new IBM micro-to-mainframe environment announced in June. ECF has some nice links between IBM's DB2 host data base and personal computers, and it should allow downloading of host data into such good things as Lotus Development Corp.'s 1-2-3 and Symphony and Ashton-Tate's dBase II and III. IBM has been rounding up personal computer and local-area network software developers to write for ECF, and a batch of new third-party products supporting ECF should start hitting the market late in 1987.

The snag is that ECF supports only LU 6.2 and non-SNA environments, and IBM's accompanying statement of direction indicates that LU 6.2 support would be provided in the future only for "selected" environments. Wasn't everything supposed to support LU 6.2? And why have some of the industry's personal computer software heavyweights been boasting about working "SNA bypass" applications in cooperation with IBM?

Something is shaping up here, and if IBM's timetable holds, there should be some surprises in 1987.

Could it be that IBM is having doubts about SNA? That it remains committed to SNA is clear, but IBM has no doubt been doing its homework on finding the limits of the SNA architecture. The company is doing

Minis hit the LAN mark

What do you call a system with dedicated cable runs to all peripherals, 24 terminal ports, four printer ports, attached disk drives, its own operating system, file structure and a logon procedure? Is it a personal computer local-area network? Or is such a system a minicomputer?

Most communications managers have followed the controversy surrounding the benefits of the personal computer local-area network vs. the minicomputer. But what is often obscured by salesmen pointing out the differences between the two products is the fact that personal computer local nets and minicomputers are becoming more and more similar both in pricing and capabilities.

It is no longer possible for manufacturers to peddle a piece of wire and make one of the personal com-

Goralski is senior systems consultant at minicomputer vendor Wang Laboratories, Inc. in Stamford, Conn. He is also an adjunct professor of computer science at

Pace University in New York.
puters a disk server. Users now demand more than just extended storage for their personal computers; they want bridges to other local-area nets and gateways to the outside world; they want shared file access and true file servers which sit atop MS-DOS and run the network software features.

Novell, Inc.'s personal computer local net has developed into a product that closely resembles a minicomputer, right down to the user list of security access rights that requires a system administrator for setup and maintenance. Novell's local network even requires special hardware and software in every personal computer on the net, in addition to the "system" network software.

While user demands have been driving personal computer local-area networks up the ladder of sophistication, market forces have been driving the minicomputers down. Computing power still doubles every two years, and the price drops inversely. Also, minicomput-

er manufacturers realized long ago they could not sell a new set of terminals to users who had a personal computer on every desk. As a result, many vendors offer packages that allow personal computers to be used as minicomputer workstations.

The list of similarities could go on and on. Unfortunately, users are still accustomed to looking at the differences between minicomputers and personal computer local nets. They see a bunch of personal computers to be connected into a 3Com Corp., Novell or other personal computer local-area network. The cost of the server and software — plus the "suggested" memory upgrade to each personal computer — would just about cover the cost of a Digital Equipment Corp. MicroVAX or Wang Laboratories, Inc. VS-5.

I recently talked to a small publisher's representative who wanted to put personal computers running just enhanced word processing on a Novell net. Downstairs he had a Prime Computer, Inc. minicomput-

er running mailing labels and some subscription services. I immediately imagined their minicomputer connecting all the editorial department personal computers and running the Prime applications at the same time in background mode — a power that minicomputers have, but that local net servers do not.
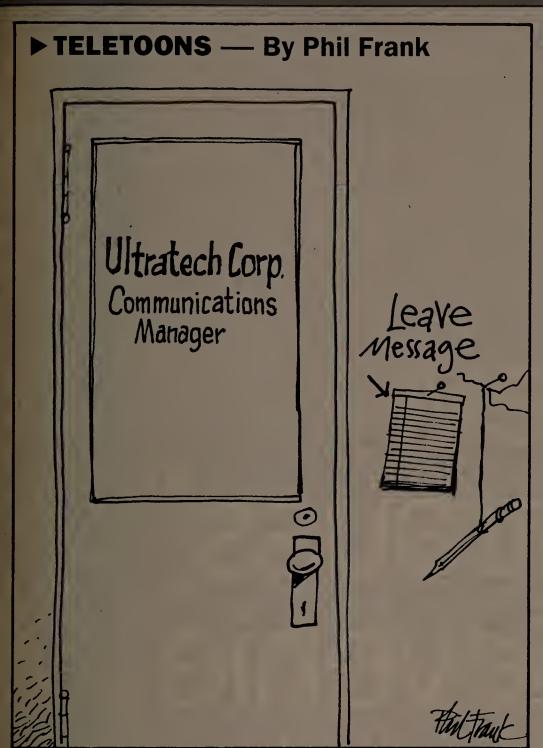
"Why are you linking the personal computers with a PC LAN?" I asked.

"How else," he replied, "do you make fried chicken except by frying it?"

Opinions

▶ TELETOONS — By Phil Frank

Ultratech Corp.
Communications
Manager

Leave
Message

Phil Frank

Perhaps some of the fault is with the minicomputer manufacturers. If personal computer users have never heard of minicomputer solutions, whose fault is that?

Granted, the marketing of minicomputers in the recent past has been as departmental processors, with links to the corporate mainframe at the home office. But today it is more likely that a department has a pioneering individual who has entered the world of personal computers and acts as a microcomputer advocate.

This person's enthusiasm slowly penetrates the office until there are a handful of personal computers sitting in the manager's office that are isolated from the rest of the corporation. Now the push is on to connect all of those personal computers.

Strangely enough, this pioneer's secretary is often sitting right outside his door with a terminal connected to a minicomputer for word processing, telexing, IBM emulation and a variety of other applications. The personal computer user never stops thinking of his computer as a special case requiring a special solution.

Unfortunately, personal computers networked together never ex-

ceed the sum of their parts — they are still a bunch of personal computers.

This is not the case with minicomputers, however. They all have true multitasking and background processing, which means that the user doesn't have to tie down a personal computer or workstation to run a program or procedure. The top-end personal computer local network can, in some cases, do much the same thing, and that is entirely the point.

As if this isn't enough, the latest announcements of "diskless personal computers" astound people familiar with minis. The whole idea is to maintain "central control" over the storage and location of data on the network. But what is a diskless personal computer but an intelligent workstation on a minicomputer? This is just another example of the convergent movement in both fields.

The point is that by narrowly looking at the problem of connecting personal computers as one that only personal computer local-area nets can solve, users are in danger of shortchanging themselves in terms of raw computer power, cost effectiveness, and future growth and expansion.

Avoiding growing pains

The request for proposal (RFP) is an opportunity for telecommunications managers to "seize the high ground" in establishing a business relationship with private branch exchange vendors. Although most telecommunications managers are cost-conscious when buying a new PBX, they often overlook the potentially higher costs of subsequent add-ons.

There are two major parts to a PBX RFP: the technical evaluation of systems architecture, feature sets and so on; and the negotiation of terms and conditions. Both are critical. Consequently, payment schedules, personnel approval, labor arrangements and critical dates are as important as evaluating responses to feature sets.

The first section of the RFP should itemize the general business requirements of the customer, such as dates for system cutover, bidders' conference and proposal submission. It should also provide a format for vendor responses. In other words, vendors should be told that the format of their responses must mirror the format of the RFP. Users should include a statement saying that bids that don't follow the mandatory format will not be considered.

A uniform format is especially pertinent to the portion of the RFP that outlines the technology so that the communications manager can compare apples with

Schumer is vice-president and director of telecommunications research advisory and strategic planning services for Gartner Group, Inc., an information industry research firm in Stamford, Conn.

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apples when evaluating the bids. Users should include a passage, commonly known as the "bridge section," stating that a response to the RFP constitutes an offer to do business, and that the response will be considered part of the contract, subject to amendments by the customer. The communications manager can use the bridge section to gain control of several critical areas, such as payment, labor, deadlines and management.

The highly competitive PBX market enables communications managers to write tough RFPs that assure not only the basic requirements but also a competitive price. The ongoing costs of maintenance and administration are often folded into cash-flow analyses. However, the ongoing costs of purchasing and installing add-on equipment are sometimes ignored. If not properly addressed, these costs can negate and swamp any savings from the initial purchase.

The research of Gartner Group shows that PBXs turn over an average of once every eight years. Therefore, new PBX lines in any year equal about 12.5% of the installed base.

The typical PBX grows in add-on equipment, upgrades and so on by about 5% per year. Thus, additions are about 5% of the installed base. In supplied lines, growth of the PBX is about 29% of the PBX shipments each year.

In the area of pricing, however, the effect of growth is even more pronounced. New PBXs are discounted an average of 25% off list price. At the same time, subsequent parts, whether for maintenance or growth, are priced an average of 25%, and often more, above list price. The result is that add-ons account for about 40% of PBX vendor revenue.

Users can reach several important conclusions from this analysis. First, because PBX vendors are feeling a profit squeeze, and because add-on pricing is barely visible to users because it is spread out over a number of years, vendors will cut initial prices and raise add-on prices. Gartner Group predicts that this trend will continue and that vendors will try to "give away the razors to make money on the blades." In addition, users can expect that installation prices for add-ons will rise.

Mixed-object architecture reaches higher than ISDN
In the future, mixed-object architecture (MOA) may accomplish at the application level what ISDN aims to accomplish at the transmission level: integration of information types as diverse as voice, text, data and video. MOA will enable a complex integrated bit stream to be resolved into its separate yet related components by a single application program.
Page one.

Levi Strauss' Gevenie Delsol
As director of corporate business communications for Levi Strauss & Co., Gevenie Delsol relies on her sense of humor and her sales experience at Pacific Bell to solve telecommunications problems confronting the $2.7 billion jeans giant. Delsol attributes her success in getting projects approved to knowing how to sell top management — and users — on telecommunications solutions.
This page.

▶ PROFILE

Levi Strauss' Gevenie Delsol

BY MARY PETROSKY
West Coast Correspondent

As a fifth generation San Franciscan herself, it seems fitting that Gevenie Delsol should be employed by one of the city's oldest businesses: jeans maker Levi Strauss & Co. Bavarian immigrant Levi Strauss made and sold his first pair of jeans in San Francisco in 1853. Today, Delsol directs communications for a company whose sales this year are estimated at $2.7 billion.

Delsol's sense of humor and sales experience have been allies in her career, and are tools she uses daily in her position as director of corporate business communications. Humor helps Delsol maintain her perspective in an industry in which increasing complexity is making many communications managers' lives miserable. Her hearty laugh punctuates her sentences, balancing her no-nonsense business style.

Department marketing
Eleven years in sales at Pacific Bell gave Delsol the skills to win upper management's approval for projects and to maintain high visibility for her group. Her experience selling to major accounts also provided her insight into solving a range of telecommunications problems and, importantly, dealing with vendors.

"A major portion of my time now is spent in selling the department — what we're doing, what we've done and justifying what we didn't do.

"We're here more as a consulting and marketing group than anything else. We're a utility, basically. A utility doesn't succeed unless people come to you," says Delsol.

Making presentations is one way Delsol maintains visibility for her department. "[Recently], I presented my three-year business plan to

NETWORK WORLD

THE WEEKLY FOR LEADING USERS OF COMMUNICATIONS PRODUCTS & SERVICES

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Company Name

Div. Dept.

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City		State	Zip Code

Is the above your home address? ☐ Yes ☐ No

I wish to receive a subscription to *Network World*: ☐ Yes ☐ No

Signature _____

Title _____ Date _____

Business Phone (_____) _____

PLEASE ANSWER ALL QUESTIONS, SIGN AND DATE THE CARD.

1 My primary areas of activity. (Circle ONE only)
I am involved in evaluating communications (data, voice and/or image) products and services:
1. for *use within my own* company/organization
2. for *resale* to other companies/organizations
3. Both
4. Other (explain) _____

1a For communications, my primary responsibility is: (Circle ONE only)
1. Data Communications
2. Voice Communications
3. Both
4. Other (explain) _____

2 Circle only the ONE title classification which most applies to you.
Company Management
11. Chairman, Pres., Owner, Gen. Mgr., Partner, Director, CEO, VP, Dir. Head of Finance, Admin. Procurement
Communications Management
Data Communications
21. Management
VP, Dir., Mgr., Head, Chief: Data Communications, including Networks, Engineering, Design, R&D, Application Development
22. Supervisory/Staff:
Supervisor, Head: Networking, Design, Analysis, Engineering, R&D, Applications, Services
Telecommunications
31. Management
VP, Dir., Mgr., Head, Chief: Telecomm., Voice Comm., including Networks. Engineering, Design, R&D, Application Development
32. Supervisory/Staff: Supervisor, Head: Networks, Design, Analysis, Engineering, R&D, Applications Services
Factory Communications
41. Management
42. Supervisory/Staff
MIS/Data Processing
51. Management
VP, Dir., Mgr., Head, Chief: MIS/DP, Systems Application Development, Operations, Office Automation
52. Supervisory/Staff: Supervisor, Head of Systems Design, Analysis Applications
Others
75. Consultant
80. Educator
85. Financial Analyst
90. Marketing/Sales
95. Other _____

3 Job Function
Which one of the following best describes your functional involvement with communications (data, voice, and /or video) products? (Circle ONE only)
Corporate
1. Business Management, Planning and/or Development
Communications System/Network
2. Management, Planning and/or Development
3. Implementation and/or Operation
4. Other _____

4 Which one of the following best describes the primary business activity of your organization at this location? (Circle ONE only)
Consultants
11. DP/Communications Consulting Services
12. Consulting Services (except DP/ Communications)
End Users
13. Manufacturer (other than computer/communications)
22. Finance/Banking/Insurance/Real Estate
23. Education
24. Medicine/Law
25. Wholesale/Retail Trade
26. Public Utility/Transportation
27. Mining/ Construction/ Petroleum Refining/ Agriculture/ Forestry
28. Business Services (excluding DP/Communications)
29. Government: Federal
30. Government: State/Local
Vendors
41. Carrier: including AT&T, BOCs, Independent Telcos, Public Data Networks, International Records Carriers
42. Interconnect
43. Manufacturer Computer/Communications Equipment
44. Value Added Reseller (VAR), Systems House, Systems Integrator
45. Distributor
46. DP/Communications Services (excluding consulting)
95. Other _____

5 In which ways do you typically become involved in acquiring communication products (data, voice, and/or video) and services? (Circle ALL that apply)
1. Recommend/Specify
2. Identify/Evaluate Potential Vendors
3. Approve the Acquisition
4. None of the Above

6 Check ALL that apply in columns A and B.
A. I am personally involved in the acquisition process (specification, selection, approval) for the following products and services:
B. These products and services are presently in use at this location:

A	B	Product/Services	A	B	Product/Services
		Computers			*Transmission/Network Services Equipment*
01. ☐	☐	Micros	18. ☐	☐	Microwave
02. ☐	☐	Minis	19. ☐	☐	Satellite Earth Stations
03. ☐	☐	Mainframes	20. ☐	☐	Local Area Networks
34. ☐	☐	Printers	21. ☐	☐	Wide Area Networks
		Data Communications	22. ☐	☐	Packet Switching Equipment
04. ☐	☐	Communications Processors	23. ☐	☐	Fiber Optic Equipment
05. ☐	☐	Comm./Networks Software	36. ☐	☐	T1
06. ☐	☐	Digital Switching Equipment			*Communications Services*
07. ☐	☐	Facsimile	24. ☐	☐	Packet Switching Services
08. ☐	☐	Modems	25. ☐	☐	Cellular Mobile Radio Services
09. ☐	☐	Multiplexers	26. ☐	☐	Electronic Mail
10. ☐	☐	Protocol Converters	27. ☐	☐	Enhanced Services
11. ☐	☐	Network Mgmt. & Control	28. ☐	☐	Centrex
12. ☐	☐	Test Equipment	29. ☐	☐	Long Haul Services
13. ☐	☐	3270 Controllers	30. ☐	☐	BOC Services
35. ☐	☐	Intelligent Terminals	31. ☐	☐	Independent Telco Services
		Telecommunications			*Other*
14. ☐	☐	PBXs	32. ☐	☐	Factory Communications
15. ☐	☐	Key Systems	33. ☐	☐	Online Data Bases
16. ☐	☐	Central Office Equipment			
17. ☐	☐	Integrated Voice/Data Terminals			

7 Estimated value of communications systems, equipment and services:
A. which you helped specify, recommend or approve in *last* 12 months? (Check only ONE in column A.)
B. which you plan to specify, recommend or approve in *next* 12 months? (Check only ONE in column B.)

A	B		A	B	
1. ☐	☐	$10 million and over	6. ☐	☐	$100,000 - $249,999
2. ☐	☐	$5 million - $9.9 million	7. ☐	☐	$50,000 - $99,999
3. ☐	☐	$1 million - $4.9 million	8. ☐	☐	Under $50,000
4. ☐	☐	$500,000 - $999,999	9. ☐	☐	Don't Know
5. ☐	☐	$250,000 - $499,999			

8 Estimated gross annual revenues for your entire company/institution:
(Circle ONE only)
1. Over $1 billion
2. $500 million to $1 billion
3. $100 million to $499.9 million
4. $50 million to $99.9 million
5. $10 million to $49.9 million
6. $5 million to $9.9 million
7. under $5 million

9 Estimated number of total employees at this location:
(Circle ONE only)
1. Over 5,000
2. 1,000 - 4,999
3. 500 - 999
4. 250 - 499
5. 100 - 249
6. 50 - 99
7. 20 - 49
8. 1 - 19

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▲
FOLD HERE AND MAIL TODAY

STOP. Did you do the following:

1. Supply old and new address if address has changed
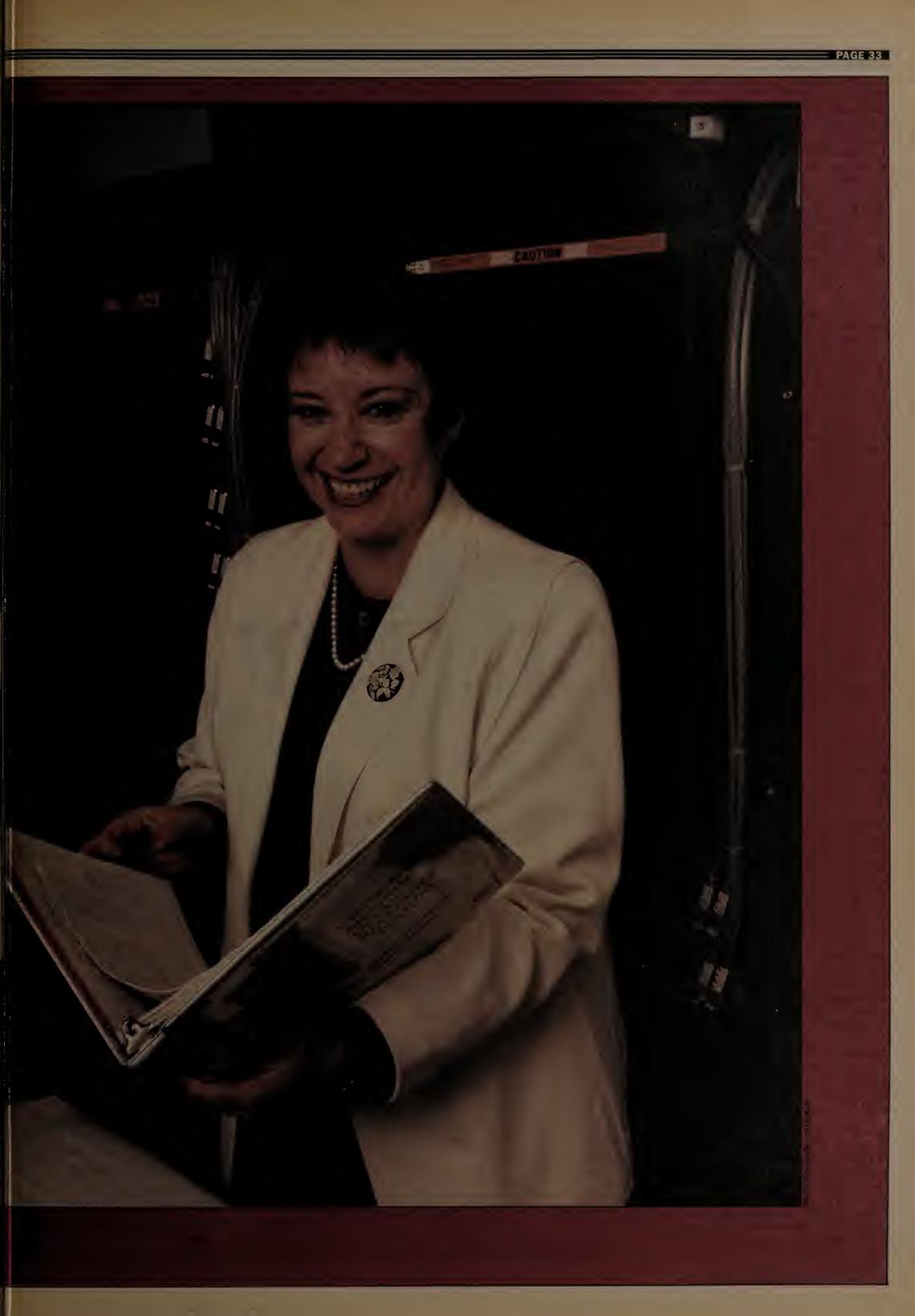2. Answer all questions
3. Sign and date form

Enclosed is my:
    ☐ Address change.
    ☐ New subscription request.

THANK YOU.

NETWORK WORLD
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PLEASE TAPE HERE
▲

CAUTION

Delsol from **page 32**
the chief operating officer, showing how telecommunications interacts with and supports all the plans of the applications groups and the business units, how we have to be the foundation for those groups to succeed," says Delsol.

"I think sales training is invaluable for a manager in telecommunications today — in any job, really. That's all you're doing. You can't go in and present a technical [proposal] to the chairman of the board or the president of the company. Their eyes glaze over. 'Why should I spend $3 million on this?' " she says in imitation of a dazed executive, and laughs.

"You've got to put it in terms they understand and relate it to them personally. That's partially why we've done so much here and gotten so many things through," she adds. Delsol also demands that her staff have good interpersonal skills. "That's one of the criteria I have when I hire people: the ability to work well with other people and

> **"I think sales training is invaluable for a manager today — in any job, really."**

to communicate your ideas, as well as to listen, is crucial."

Delsol meets regularly with key managers throughout the company to ensure that she knows their needs. "I've built a very strong rapport with most of the people [managers in the various business groups], so they don't feel we're a roadblock. As a customer-service type group, I feel a crucial part of my job is to maintain an overview of what's happening between all the groups. I have to have an understanding of what's happening all the time. Things happen too quickly and can go bad very fast," Delsol says.

Seventeen years ago, Delsol began her career in telecommunications almost by mistake. "I started at Pacific Bell as a marketing rep just to earn some money to go to Europe," she laughs. She did go to Europe, but came back to Pacific Bell and worked her way up first to the position of outside account executive, then to handling major accounts. In this position, she was responsible for needs assessment, recommending systems and coordinating the team for installation of the system, with full accountability on an account, she says.

Six years ago she was approached by Levi Strauss and offered the job of communications engineer. She accepted the position and within six months was made manager of operations. In 1984, she

was named manager of business communications and put in charge of voice and data communications as well as messaging.
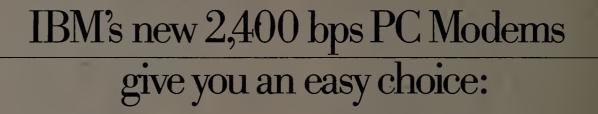
Gaining directorship
This past July, Delsol was named a director and her group of 20 was moved out from under the MIS department and made a separate corporate entity. Today, Delsol is on par with the director of corporate information processing, to whom she used to report. She and her counterpart in computing both report to the vice-president of information systems, who reports directly to the chief operating officer.

Delsol sees this restructuring as an acknowledgement of the strategic role communications plays for the company. "Within the last year there's been a much stronger awareness of telecommunications as vital for doing business. The company is committed very strongly to a lot of major communications efforts," says Delsol.

Already in place is an 800 number that allows retailers to order merchandise directly, rather than wait for a salesman to call on them. A project in the works will provide electronic document interchange between the company and its retailers. "If we can gain the entry with our retailers, then we present them with a package that makes it easy to do business with us. There are a number of different tools we're developing — these are val-

ue-added things," says Delsol.

A major project underway involves the expansion of the company's data network. Levi Strauss' far-flung operation includes a mix of distribution, manufacturing and sales offices across the United States and in approximately 70 countries. Communications strategy and management of these sites is centralized, says Delsol.

Currently, most data communications applications are batch-oriented. The key application, the order management system used by the sales force, is now run under General Electric Information Services Co. Levi Strauss wants to take this application in-house domestically, and is now writing its own order management system as

an on-line application.

"This new system requires a great deal more data exchange and information flow, and that volume means there's going to be a radical change in the network next year," says Delsol. Currently, the domestic data network includes eight leased circuits going out in a star to the company's distribution centers and several sales offices.

"What we're going to do is provide leased-line connectivity to every Levi location. It's dial-up primarily now," says Delsol. The dial-up traffic includes more than 300 sales people with personal computers who use Telenet's X.25 network to tie into the home office. Levi Strauss also uses Telenet to tie its international locations to each other, as well as to link them to corporate headquarters.

The move to leased lines could prove problematic, however. "Everyone wants you off leased lines. But you've got a conflict between SNA, which wants leased lines, and AT&T, which wants you to go with Software-Defined Network," says Delsol. She doesn't know yet whether going with a software-defined network will affect the quality of data transmission: "If what AT&T says is right, it shouldn't."

Vigilance in vendor relations

That "if" reflects the basic skepticism that pervades Delsol's dealings with vendors. Getting vendors to meet their commitments, says Delsol, is the greatest challenge she faces in her job. "Working with vendors to get them to perform up to the standards we set is an ongoing, never-ending task. There's a great deal of emphasis at Levi on quality and on doing the job right the first time, and it's hard to find vendors who have that same emphasis.

"No one's exempt" from this charge, says Delsol. Not even AT&T, Levi Strauss' stated vendor of choice for networking and communications, nor IBM, the key computer vendor for Levi Strauss domestically. Delsol has discovered that buying big-ticket items, such as a private branch exchange for the corporate headquarters, often brings out the worst in vendors.

She admits that vendors have tried to go around her by talking directly to her boss. "It doesn't happen as much as it used to. It's usually because there's such a large dollar investment that it makes it worth their while to try. If I was a salesperson, I would probably do the same thing," she says.

Even though she understands why salespeople use this strategy, that doesn't mean she likes it. "You don't take it personally; salespeople aren't doing that to get you, although they will attack you personally sometimes," Delsol says. "And you can't get defensive about your position; it may be right, it may be wrong. No one's perfect."

She's dubbed her strategy for handling this situation "the early warning system." Delsol warns her management at the outset of the bidding process that a vendor might try to make an end run around her. "As a manager, you don't want to be surprised. My manager doesn't want to be surprised, I don't want to be surprised. As we work our way through a project, I say 'OK, we've excluded this vendor, these are my reasons.' If my manager knows what's going on all the way along the line, there's no problem," says Delsol.

As for her own management style, Delsol says she practices an open door policy. "Being available and listening" are key, she says. "And having a sense of humor helps a lot."

Delsol also says she sets high standards for herself and her staff. "I put a lot of effort into communicating to the department what I expect and the quality I expect. I think people work better that way. We work hard, but I try to reward the staff. That acknowledgement is not necessarily a promotion or money; there are a lot of ways of making people feel recognized."

A member of the International Communications Association and the Network Users Association, Delsol encourages her man-

> *"Working with vendors to get them to perform up to the standards we set is an ongoing task. There's a great deal of emphasis at Levi on quality, and it's hard to find vendors who have that same emphasis."*

Delsol from **page 35**

agers to attend users group meetings, including those for the AT&T System 85 and Telenet. "I'm not sure how much good information you get out of the vendor from those meetings, but I think that interaction and sharing between users is invaluable," she says.

Her staff has remained relatively stable, but when she does need to hire some-

one, Delsol usually picks someone she or one of her managers knows, usually someone with a communica-

tions background from another company or from the Bell system. However, she has brought several people

from other parts of the company into the operations group on the voice side and trained them.

> *"I'm not sure how much information you get out of the vendor from meetings, but I think interaction between users is invaluable."*

"This has been very successful, although it takes more work to do that," Delsol says. In general, she tries to have staff members attend at least three training sessions a year, offered by vendors or outside firms.

Gender roadblocks falling

Being a woman in the telecommunications industry has created obstacles for Delsol, although attitudes have changed considerably from when she started out in the business, she says. "When I was first in sales at Pacific, I would come up against resistance a lot because there weren't many women in sales at the time. You'd run into 'old boys' out at a plant at an airplane company or somewhere you were trying to sell and [the attitude would be] 'go away little girl, you bother me,'" she says with a laugh.

"In the computer area, too, there haven't been many women at all." It's difficult for some of the computer vendors to accept the fact that there are now women in management positions, she says.
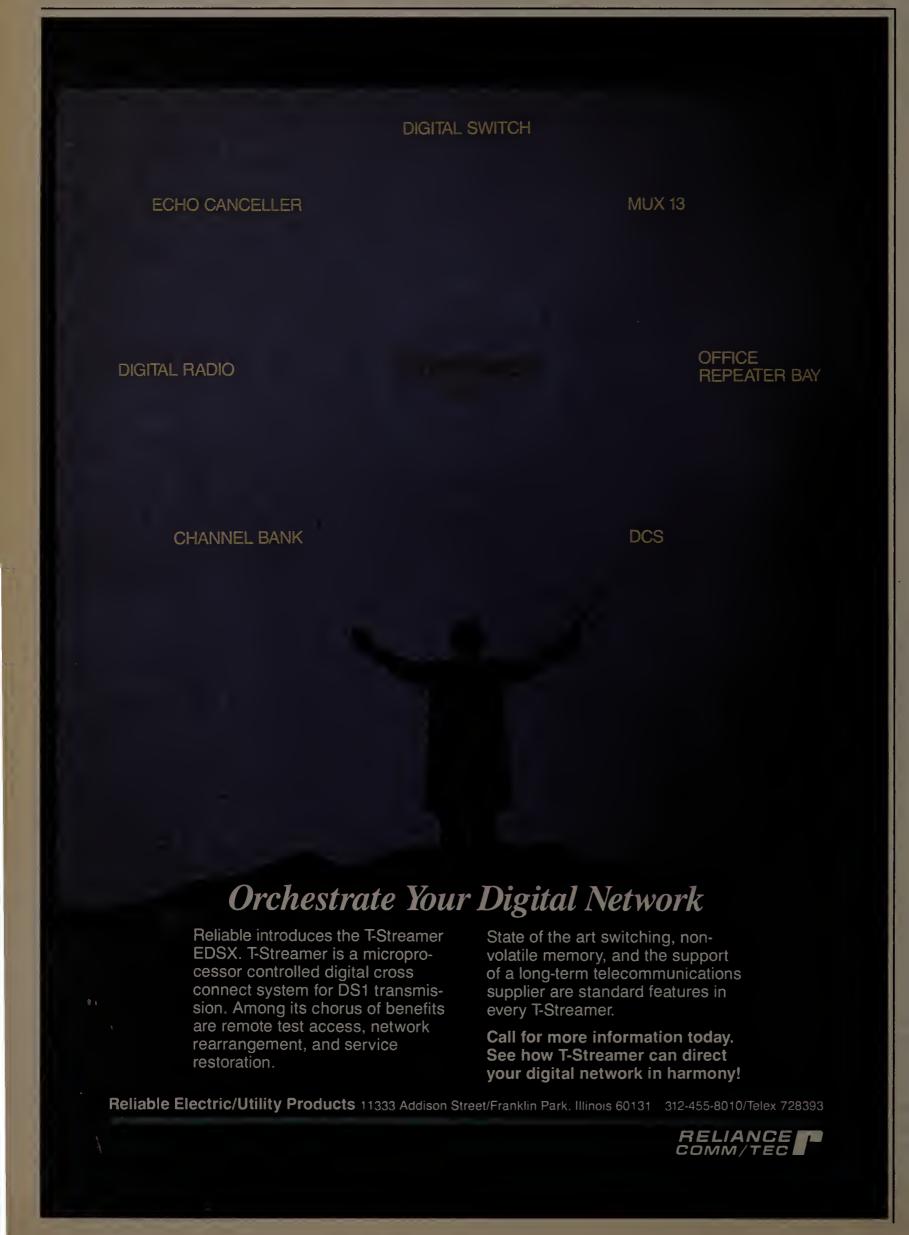
Although Levi Strauss as a company is open to women in technical positions, Delsol says she still occa-

> *"If I think the vendor is obnoxious, I have no problem calling his boss about it."*

sionally runs into a vendor that is not. Her response? "I won't deal with them. I'm not shy. If I think the vendor [sales person] is obnoxious or way out of line, I have no problem calling his boss about it. [That sales person] is representing their company out here. If that's the kind of representation the company wants, that's their choice. But my choice is not to do business with them."

Being an effective telecommunications manager is a combination of demonstrating your abilities and selling yourself, says Delsol. It's a formula that has certainly worked for her.

A hodgepodge of objects: Transmission impossible?

form, it doesn't do anything for users at the application level.

What leading-edge users dream of is the capability to blend any desired combination of information types within a single structure or file. The most promising method of answering that need is known to software developers as mixed-object architecture (MOA). This application-level architecture, also referred to as multiple-object architecture or generalized data stream architecture, tackles the integration problem by providing a unified concept for standard software design.

The ultimate benefit of MOA for users will be the development of integrated application software that supports unprecedented functional — as opposed to merely technical — integration of all categories of digitized information.

As MOA-based applications become available, they will facilitate organizational integration of formerly separate corporate departments, such as telecommunications and data processing, by supporting functional integration of all information input and output devices, including display screens, keyboards, telephones and video cameras. In conjunction with ISDN, applications that utilize MOA will likely enhance the role of the chief information officer in organizations and influence the corporate information policies he establishes.

Mixing and matching objects

As an emerging standard architecture

Guengerich is senior consultant for MCM Systems, a general business systems consulting organization in Houston.

for applications software development, MOA has the potential to erase the lines that are currently drawn between information systems that handle "objects," or information types, in proprietary ways. The objects of primary importance to users include voice, text, graphics, photographic images, bar codes, spreadsheet data, audio and video. MOA provides a method of combining those objects in an integrated bit-stream that constitutes a single file or document.

The three basic categories of data stream architectures specify the format of data representing the content of a stored document, the format of data for document interchange and the format of data for communications between devices on a network. MOA is an advanced document content architecture.

The primary IBM data stream architectures for these categories are, respectively, Document Content Architecture (DCA), Document Interchange Architecture (DIA) and Systems Network Architecture. The major alternatives to IBM's architectures are those developed by the Consultative Committee on International Telephony and Telegraphy. The corresponding CCITT standards for communications architecture are a series known as X.400, which covers the first two categories, and the Open Systems Interconnect (OSI) architecture in the third category.
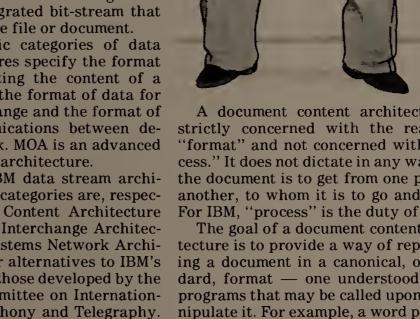
All of these architectures provide a standard for developing communications software that will allow sharing of information among many different types of computer systems in a network. In general, document content architectures are the fundamental integrating mechanisms. They allow software to describe the format and meaning of the content of a document to be interchanged in a network.

A document content architecture is strictly concerned with the realm of "format" and not concerned with "process." It does not dictate in any way how the document is to get from one place to another, to whom it is to go and so on. For IBM, "process" is the duty of DIA.

The goal of a document content architecture is to provide a way of representing a document in a canonical, or standard, format — one understood by all programs that may be called upon to manipulate it. For example, a word processing program that utilizes a standard document content architecture is relieved of the burden of having to understand and interpret the files of dozens of popular word processors. It only has to be able to recognize, interpret and represent a document in a single format.

Each object type has unique characteristics that determine its format so that it can be interchanged as a part of a document. Up until now, text has been the only object for which vendors have largely adopted a standard document content architecture, loosely based on IBM's DCA.

One way of dealing with other objects, such as voice or video, is to develop other document content architectures

MOA from page 37

for them. However, a proliferation of architectures decreases the opportunity for minimizing the number of standard formats, and doesn't completely address the problem of how to integrate the objects to facilitate interchange.

MOA is the complete solution to this interchange problem. A mixed architecture can be fashioned from the strengths of the existing document content architectures to provide a common language for documents and their many objects so that they are interpretable on any system. MOA provides the integrating framework necessary to intermingle and interchange freely the spectrum of information present in an organization.

From a strategic viewpoint, MOA provides an important link in the plan to bring together the many resources of an organization. From a practical perspective, MOA means change — change in the sense that any MOA standard that emerges must be different from all of the current document content architectures, but similar to them all.

Therefore, conversion programs, called transforms, are necessary to move MOA documents into an existing software product or to move existing documents into an MOA product. These programs are an interim solution that will not be necessary once software firms build MOA into their products from the ground up rather than adding MOA capability to existing products.

MOA by itself specifies only part of the architecture necessary to define a complete data stream. A set of specialized object content architectures completes the picture. In the past, document content architectures combined the functions of MOAs and object content architectures for each single object type. In the future, if standards are agreed upon, multiple document content architectures will be phased out in favor of a single MOA and a variety of object content architectures.

Impact on network planning

Because products that implement MOAs are still under development and not yet available, it is too early for users to make specific preparations for them as part of their network planning. In general terms, the likely short- and long-term impacts of the architecture include the following:

■ Application programs based on MOAs will accelerate widespread user acceptance of ISDN. ISDN's main objectives — to inhibit further evolution of separate voice, data and video networks and to provide the user with a single, simple network interface — are compatible with those of MOA.

■ General document content architecture research by vendors will be phased out in favor of MOA research. Vendors' first MOA-based products will focus primarily on revisable and final-form text objects.

■ Development of office systems processors with more real and virtual main memory will continue in order to support manipulation of complex, multiobject document structures. The introduction of the 80386-based Deskpro microcomputer by Compaq Computer Corp., with the potential for 4 gigabytes of main memory and 64 trillion bytes of virtual storage is confirmation of this direction.

■ There will be a rebirth of the merging of voice and data functionality into integrated voice/data workstations (IVDW) that can resolve mixed-object data streams. With their merging of handset, high-resolution screen, keyboard and microprocessor, IVDWs such as the Cedar/Cypress/Juniper trio offered by Rolm Corp. will become the de facto desktop workstations for managers and executives.

■ Higher speed transmission devices and higher throughput channels will be required to accommodate affordable transmission of the larger MOA data streams. The trend toward use of — and lower prices for — T-1 resources at 1.544M bit/sec transmission rates off-premises and multigigabit data rates for private branch exchange and on-premises networks must continue.

■ There will be a heavier reliance on the cluster controllers, front-end processors and general departmental processors in networks. These units will be necessary to relieve some of the processing burden of the data stream from the mainframe or other central processing operations.

■ There will be continued development of integrated multiobject applications, whether host-based or micro-based. This is a departure from the skeptical view that integrated application software, for example, Lotus Development Corp.'s Symphony and Ashton-Tate's Framework, cannot perform as expected and will not be further developed.

Digital Equipment Corp.'s VAX line of computers and IBM's new 9370 line of customer-installable, mainframe-compatible minicomputers will form a large hardware base amenable to running large MOA applications. These will provide a growth path for user applications within stable, integrated vendor environments.

The developers of the first MOAs will secure positions as market leaders in the area of standards development for mixed-object applications software.

The "open architecture" approach to product development, with all major vendors making more information available to each other and third parties, will particularly benefit MOAs, because one of their strengths is the flexibility to incorporate new object content architectures in the data stream as they are developed.

In any case, there is a need for increasingly sophisticated software to help users get the most out of their hardware resources. MOA provides a foundation to achieve this goal. It provides a structure for developing the business applications that can deliver the integration and performance users need. ◩

Gateway from page 2

sided on a mainframe and chose IBM's Personal Services 370, which can be used with DISOSS.

Research analysts, who do a great deal of spreadsheet work, make up the second group of users. These workers had been using personal computers for more than four years. Approximately six months ago, Merrill Lynch decided to tie the microcomputers together through a local network.

3Com's products were chosen because its software was deemed more robust than competitive offerings, according to Rasmussen. Also, the network supported IBM's Type 2 shielded twisted-pair wiring, which Merrill Lynch was using throughout the home office complex. Three local nets serving more than 100 users are currently running in the Toronto office complex.

The next step in the plan was linking the local network E-mail system with DISOSS. Since no one offered a package with this capability, Merrill Lynch commissioned Linkage to develop one. Robert Jull, president of Linkage, was working with Merrill Lynch in developing its E-mail strategy and Rasmussen was satisfied with Linkage's work.

A few months ago, Linkage delivered the gateway, which translates DISOSS documents into 3+Mail format and vice versa. The package works with IBM LU 6.2 protocols and enables users to exchange revisable and final form documents. A personal computer running the gateway software looks like a Physical Unit 2.0 device to a host and acts as a sending and receiving DISOSS node.

Merrill Lynch has tested the product's local net interface and is satisfied with it. In the next few weeks, the company expects to begin testing the gateway's DISOSS interface and exchanging documents between the two E-mail systems. That process should be completed in the next few months.

The two companies understand that the product, which is owned by Merrill Lynch, could have commercial appeal and have reached an agreement on marketing and royalty rights should the product be made commercially available. Linkage is soliciting companies to test the package. Jull said that Electronic Data Systems Corp. plans to test the product and may market it if its tests are successful. 3Com is reportedly interested in adding the package to its line.

A potential customer may be Merrill Lynch's U.S. operation. Rasmussen said the Canadian arm of Merrill Lynch functions autonomously but keeps its U.S. counterparts abreast of technology developments. "The U.S. operation knows that we are developing the gateway," he said.

Once the gateway project is finished, Merrill Lynch of Canada will turn its attention to tying six remote offices into the E-mail system. These offices are equipped with IBM System/36 minicomputers used for remote job entry applications. ◩

MASCO from page 2

those institutions are located in what is known as the Longwood Medical Area.

MASCO's overall telecommunications network covers about 95% of the calls made by its members, according to Cusack. Most MASCO members maintain independent data networks.

While MASCO focuses on its member institutions in the Longwood Medical Area, it also maintains some 50 tie lines to other medical and educational institutions, such as Massachusetts General Hospital in Boston, Lahey Clinic in Burlington, Mass., Harvard University and the Massachusetts Institute of Technology in Cambridge, Mass., and Harvard's Primate Research Center near Worcester, Mass.

For long-distance calls, MASCO is using MCI Communications Corp.'s Prism 1, a bulk calling service aimed at customers with monthly telephone bills of $10,000 or more. Before subscribing to the MCI service, Cusack had 23 WATS lines. Prism 1 gives him 24 channels over a T-1 pipe into a virtual WATS network. MASCO cut over to Prism 1 in May.

> ❝*MASCO's network covers about 95% of the calls made by its members.* ❞

"We've been very happy with Prism," Cusack said. "If there is line trouble, I can get it reported and fixed before the beginning of the next business day." He gauged the reliability of Prism 1 at about 99%.

Cusack said he, like other large Centrex users, had been in limbo, not knowing whether to stay with Centrex or to go with a PBX.

Cusack belongs to a 20-member Centrex users' group, which includes John Hancock Mutual Life Insurance Co., Blue Cross/Blue Shield and Harvard University. New England Telephone has filed tariffs for the new Centrex service for five or six of those users, he noted.

The Centrex users began to meet regularly about a year and a half ago, Cusack said.

"It seemed like every one of the large users had the same problems. Rather than fighting individually, we decided to go to the company in a group.

"New England Telephone has provided the facilities for these meetings to tell us what is going on with Centrex and what's coming, and to give us an arena to vent our problems."◩

Seattle from page 1

vices for the city of Seattle, said the city hired two consulting firms to aid in the preparation of the voice network RFP, which Wu claimed took two years to prepare. "The Contel network proposal is at least $6 million less expensive than either of US West Information Systems' bids," he asserted.

Included in the RFP was a model that described in detail the network the city hoped to have built, Wu explained. The model was intended to help the city accurately compare bidders' proposals.

Contel Business Network's system proposal, which includes 15 Northern Telecom, Inc. SL-1 PBXs linked to a fiber-optic cable ring, is expected to save the city $1.2 million per year for the next 10 years. Wu said the annual savings figure could rise to as much as $2 million per year in the future. The system will serve 5,200 telephone sets.

US West Information Systems tendered a pair of proposals. The first called for a system comprising 15 NEC America, Inc. NEAX 2400 PBXs. The second proposal would have provided the city with digital Centrex services offered through a Northern Telecom, Inc. DMS-100 central office switch, Wu said. The city's current voice net, which will cost it $3.1 million this year, is based on Centrex services and numerous key systems.

In its suit, filed in the King County Superior Court, US West Information Services alleged the city of Seattle negotiated with Contel Business Networks to modify that company's proposal after the contract was awarded. US West also contended the city's RFP was not adequately specific on certain sought network characteristics and that Contel's proposal did not meet the requirements of the city's RFP.

US West also maintained that the city did not consider certain aspects of US West Information Systems' Centrex proposal, which the company argued would save the city some $9 million over 10 years. Finally, the regional Bell holding company maintained Seattle violat-ed its own RFP regulations, which require that portions of the network construction be undertaken by companies owned by women and minorities.

Wu steadfastly maintained there were no equipment modifications or price changes discussed by Seattle or Contel Business Networks after the contract was awarded. He said the RFP was more than adequately detailed. "We wanted to make it specific enough to enable us to compare proposals, but we worried that if we specified network aspects too specifically we would predetermine the vendor," he explained.

Wu rejected US West Information Systems' allegation that Contel's proposal did not meet the RFP's requirements and argued that US West Information Systems' charge concerning companies headed by women and minorities to build the net is unfounded. Wu asserted that the law US West Information Systems claimed was broken is not the same law the city is required to adhere to in RFP situations.

"I can guarantee there is nothing to that charge," Wu said of US West Information Systems' claim that the city did not fully examine the vendor's Centrex proposal. "Each time they come up with a dollar figure for savings on the Centrex system, we proved they don't know what they are talking about. They shift from figure to figure," he noted.

Pacific Northwest Bell spokesman Vic Kucera said of the network capacity resale flap, "We have a problem with a government that becomes involved in private telecommunications sales. Pacific Northwest Bell is a large taxpayer in Seattle. We don't want our tax dollars used to finance a system that may compete against us."

Wu responded, "Our city council instructed us that if we wanted to lease excess capacity, we would have to go through them to acquire the proper ordinance. Our intent is not to compete with Pacific Northwest Bell in this situation." ⊡

Intelsat from page 7

Intelsat initially suspended Colino and Alegrett on Nov. 24 because of the payment to the brokers, who were assisting Intelsat in arranging a loan of roughly $60 million for refinancing of the organization's headquarters building.

Intelsat described the initial suspensions as administrative leaves. Colino has acknowledged that Intelsat's board did not approve the loan.

The Peat Marwick report had called for Intelsat's board to conduct an independent investigation into the loan payment. At its meeting, the board established a special committee to be chaired by Tadashi Nishimoto, chairman of Intelsat's board, to oversee an investigation to be conducted by Intelsat's outside counsel, the firm of Arent, Fox, Kintner, Plotkin & Kahn. Peat Marwick will assist in the investigation.

Colino last week released a statement which said that his actions were in the best interest of Intelsat, something he said would become clear once further information was available. In the statement, Colino said he was not consulted about the incident by the authors of the Peat Marwick report.

According to reports, the Peat Marwick study said that in June, mortgage brokers Charles and Dana Gerrell delivered to Colino a loan offer from RepublicBank Corp. of Dallas. The report said Colino discussed the offer with Intelsat's board of directors and then asked the agency's deputy director general for finance, David Trudge, to get proposals from other banks.

Colino then reportedly asked Robert Leahy, Intelsat's public relations director, to "arrange enough engagements to keep Trudge out of the office as much as possible during July."

In addition, other Intelsat internal documents reveal that Colino modified check signing procedures so that the signature of a finance department official was no longer necessary for payments exceeding $100,000. As a result, Colino, or Alegrett acting in Colino's stead, could sign such checks if they obtained an additional signature from one of about a dozen other executives.

A second RepublicBank loan offer was accepted by Alegrett and Colino on Aug. 18, according to the report, and the Gerrells demanded a $2.25 million payment, described in the report as being 10 times the amount necessary.

Colino then approved a payment of some $1.35 million to the Gerrells. Alegrett discussed the payment with Intelsat's acting legal adviser Claudio Bonnefoy, who reportedly told him that Intelsat was not obliged to pay the Gerrells and that Intelsat would prevail if the pair brought suit against the organization. Still, according to the report, Alegrett issued a $1.35 million check to the Gerrells on Aug. 19.

On Aug. 20, according to the Peat Marwick report, Colino had James Malarkey, Intelsat's internal auditor, conduct an audit of the transaction. Colino told Malarkey to "critically evaluate" Trudge's role in the loan process, the report said.

Four days later, according to the report, Colino instructed Malarkey to rewrite his account of the audit findings. Malarkey rewrote the report, making it more critical of Trudge, but he also noted that the payment should not have been made. Malarkey then informed Peat Marwick of the circumstances surrounding the report.

In September, according to the report by Peat Marwick, Colino asked Leahy to sign a memo back dated to Aug 18. The memo told Alegrett to "avoid all bad publicity" in the matter.

Alegrett had justified the payment to the Gerrells on the grounds that it was necessary to avoid bad publicity.

Also in September, Colino signed a document releasing the Gerrells from having to repay the $1.35 million even though Trudge and Intelsat attorney David Leive told Colino the organization did not owe the Gerrells anything. ⊡

SNA from page 30

much talking about integrating data, text, graphics and image source, and with its 1986 announcements, it is surprisingly far advanced along this route.

The data traffic volumes that this would generate are massive. By IBM's own figures, regular voice annotation of text documents in an SNA network would increase data volume by a factor of five and computing overhead by a factor of 10. Small wonder IBM is talking in terms of billions of instructions per second and Terabytes for 1990s mainframes to support integrated networks. Then there is ISDN to be supported as well as X.25 and ISO/OSI and the rest.

IBM may well have asked itself whether SNA, with its software innovations, exponential increases in processor overhead and creaking VTAM, can handle all of this without outlays that even the truest-of-true-blue MIS shops would balk at. With Digital Equipment Corp. breathing down its neck and the possibility that the ISO/OSI bandwagon may become a reality, IBM may have scared itself a bit about the long-term limitations of SNA. At the very least, a little hedging of one's bets may be in order.

A move away from SNA? Unthinkable, perhaps.

But then, the way IBM's financial situation is going, there must be a lot of people in IBM these days thinking the unthinkable. ⊡

RFP from page 31

Second, this trend will create an opportunity for third parties to provide add-ons and installation through used parts.

In fact, although the Gartner Group continues to be bearish about the expansion of the used PBX market — despite positive trade press reports — the used parts market could become an im-portant factor in controlling vendor pricing.

Finally, well-managed user telecommunications organizations will pay more attention to the price of subsequent equipment purchases by writing specific conditions into their RFPs, negotiating life cycle costs — rather than only initial costs — and exploring alternative sources for subsequent equipment.

Advice for any add-on system

These observations are applicable not only to PBXs but also to any system that requires incremental add-ons. By following similar advice for local-area network acquisitions, for example, users could reap substantial savings.

As a final note, users should assess their growth expectations before bargaining with vendors through the RFP process to gain the best possible negotiating position, and add-on pricing, over the long term. ⊡

Shootout from page 6

have been achieved," said 3Com Chairman Bob Metcalfe. "For 20 years, people have been using benchmarks to get their competitors. Users for 20 years have been struggling with what constitutes a representative benchmark for their situations," Metcalfe said.

Craig Burton, vice-president of corporate marketing and development for Novell, said the real benefit of the Shootout was that attendees heard about test methodologies from different vendors and were shown different approaches for use in network testing.

Although Seybold does conduct performance benchmarks in its network evaluations, the market research firm compares a variety of qualitative factors, such as ease of use and quality of documentation, as well as quantitative factors such as network speed and cost, said Tom White, executive vice-president of Seybold. ⊡

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Dec. 8, Los Angeles — Distributed Database: How to Integrate Data in a Multi-Vendor Environment. Also, Feb. 23, Washington, D.C. Contact: Digital Consulting Associates, Inc., 6 Windsor St., Andover, Mass. 01810.

Dec. 8-9, New York — The Plain-English Seminar on Telecom Management Strategies: How to Find the Best Solution for Your Company. Contact: Telecommunications Alert, Seminar Registration Department, One Park Ave., New York, N.Y. 10016.

Dec. 8-9, Boston — Understanding the X.25 Protocol and Packet Switching Networks. Contact: Data-Tech Institute, Lakeview Plaza, P.O. Box 2429, Clifton, N.J. 07015.

Dec. 8-10, Stamford, Conn. — Private Networks: Future Directions. Contact: Chris Sherman, International Resource Development, Inc., 6 Prowitt St., Norwalk, Conn. 06855.

Dec. 8-10, Chicago — Fundamentals of Telecommunications. Contact: ABC TeleTraining, Inc., P.O. Box 537, Geneva, Ill. 60134.

Dec. 8-10, New York — Data Communications Systems and Networks. Also, Jan. 14-16, Houston; Jan. 21-23, Chicago; Jan. 26-28, Washington, D.C. Contact: Data Communications Institute, 55 Main St., Madison, N.J. 07940.

Dec. 8-11, Washington, D.C. — National Data Communications Symposium on Local Area Networks and Micro-Mainframe Links. Contact: Software Institute of America, Inc., 8 Windsor St., Andover, Mass. 01810.

Dec. 9, Boston — NetWare Users Group. Contact: Glenn Fund, Sanders Associates, Daniel Webster Highway South, Mailstop NHQ4-0405, Nashua, N.H. 03061.

Dec. 9-10, Washington, D.C. — Central Office Switching: New Technologies and Network Applications. Contact: Phillips Publishing, Inc., 7811 Montrose Road, Potomac, Md. 20854.

Dec. 9-10, Chicago — Digital Data Networking. Contact: BCR Enterprises, Inc., 950 York Road, Hinsdale, Ill. 60521.

Dec. 9-11, Los Angeles — Fiber-Optic Splicing. Contact: ABC Tele-Training, Inc., P.O. Box 537, Geneva, Ill. 60134.

Dec. 11-12, Boston — Advanced Communications Architectures Seminar. Contact: Communications Solutions, Inc., 992 S. Saratoga-Sunnyvale Road, San Jose, Calif. 95129.

Dec. 11-12, New York — Telecommunications Management: Managing from Expense to Profit. Contact: McGraw-Hill Information Systems Co., 1221 Avenue of the Americas, New York, N.Y. 10020.

Dec. 11-12, Chicago — T-1 Networking. Contact: BCR Enterprises, Inc., 950 York Road, Hinsdale, Ill. 60521.

Dec. 15-16, Washington, D.C. — Understanding the X.25 Protocol. Also, Jan. 12-13, Princeton, N.J.; Jan. 14-15, New York; Jan. 22-23, Columbus, Ohio. Contact: Data-Tech Institute, Lakeview Plaza, P.O. Box 2429, Clifton, N.J. 07015.

Dec. 16, Washington, D.C. — How to Bid on $2 Billion in Telecommunications Projects. Contact: U.S. Telecommunications Suppliers Association, Suite 1618, 333 N. Michigan Ave., Chicago, Ill. 60601.

Dec. 17-19, New York — Dexpo East '86. Contact: Expoconsul International, Inc., 3 Independence Way, Princeton, N.J. 08540.

Dec. 18-19, Denver — X.25: Evaluating and Selecting Offerings and Options. Also, Jan. 15-16, Minneapolis; Jan. 29-30, Boston; Feb. 5-6, Atlanta; Feb. 19-20, Washington, D.C. Contact: Center for Advanced Professional Education, 1820 E. Garry St., Suite 110, Santa Ana, Calif. 92705.

Jan. 6-8, Washington, D.C. — An Introduction to Data Communications. Also, Jan. 12-14, Albuquerque, N.M.; Jan. 14-16, Hartford, Conn.; Jan. 21-23, Indianapolis. Contact: American Institute, 55 Main St., Madison, N.J. 07940. 07940.

Jan. 12-13, Dallas — Introduction to Telecommunications Systems: Technologies and Applications. Contact: BCR Enterprises, 950 York Road, Hinsdale, Ill. 60521.

Jan. 14-16, Washington, D.C. — Protocols for Open Systems Interconnection. Contact: The George Washington University, Continuing Engineering Education, Washington, D.C. 20052.

Jan. 18-21, San Antonio, Tex. — Association of College and University Telecommunications Administrators' Winter Seminar. Contact: Association of College and University Telecommunications Adminstrators, 211 Nebraska Hall, Lincoln, Neb. 06855.

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HORRELLSCOPES
BY EDWARD HORRELL

In communications today, it takes more than just good business sense to survive; it requires celestial guidance.

Aries: A lot of corporate talent is going to be ramming around the marketplace when AT&T finishes laying off people.

The sign of Aries is characterized by an orderly, harmonious personality — one that is easily upset when order is disturbed. AT&T Aries must be going berserk about now.

The consolidation of AT&T Communications and AT&T Information Systems will result in wholesale layoffs. Approximately 25,000 middle managers will get the ax from the stellar company soon.

It takes no crystal ball gazing to see the turmoil this is causing within the company. Morale at AT&T is in the black hole.

This attitude, of course, finds its way to consumers. Until AT&T gets its planet realigned, customers are advised to do the following:
■ Get everything from AT&T in writing. This is a protective measure in case the customer's AT&T representative leaves the company and leaves him stranded.
■ Watch for reductions in support, and consider hiring one of the terminated AT&T employees.
■ Look out for a rash of consultants when former AT&T employees try to reorganize their careers.

Virgo: The sign of generosity and progressiveness controlled the recent North American Telecommunications Association (NATA) show.

But apparently, too many NATA members are too generous, especially with their profits. The question of the day at the recent show in St. Louis, Mo., was "Who is making money in interconnect?"

The answer lies with progressive Virgos who are sensitive to market changes. Users should watch for a multitude of mergers and acquisitions among interconnects.

Just as interesting will be the number of new ways of bringing products to the consumer. Watch for new products to spring forth in the marketplace like Athena from the head of Zeus.

These virgin products will reflect a resurgence of interest in the ballyhooed voice mail systems. Everyone will be selling them in 1987. Also, watch for "packages" to pop up

Horrell is president of Mitchell & Horrell, Inc., a telecommunications consulting firm in Memphis, Tenn.

from interconnects. These will include long-distance deals in conjunction with resellers of long-distance cellular companies and resold voice mailboxes.

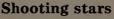The interconnect business is going to change in 1987.

Scorpio: The whir of the Scorpion's tail signaling the demise of interconnects should be sufficient for the wise consumer.

The price war for private branch exchange systems is about over. The end is near because corporate white flags are beginning to wave all over the place.

Smart users should bring service in-house and stop relying entirely on vendors for telephone service. There is just no money in it anymore.

Those "extra" services that were a part of the original deal, such as training and after-hours maintenance, are going to be a thing of the past.

Shooting stars
Everybody likes to kick the king when he's down.

It appears that bogus astrologers are coming out of the woodwork saying they could see long ago the fall of Federal Express Corp.'s Zapmail.

The company line on Zapmail is that the electronic message service failed because of high costs and low user acceptance. Insiders say the network was poorly planned, averaging three attempts to send one document. This comes as a shock in view of the astrologically high grade of telecommunications talent at Federal Express.

The same insiders are venturing to suggest Federal Express' next move will be voice processing. And what could be more natural?

The use of voice-input computers and voice store-and-forward would enhance the corporate giant both operationally and commercially.

It would do skeptics well to remember that the package delivery system used by Federal Express is the same concept as packet switching, which is so popular today.

For information-movement leaders in 1987, keep Federal Express at the top of the list.

Taurus: There appears to be a bull market out there for toll-free long distance.

Joining the wide-open race for the toll-free market competition is AT&T.

What's this? But AT&T is already the leader in 800 numbers. That was before the stiff competition from US Sprint Communications Co., MCI Communications Corp. and Western Union Corp. began sniffing around the previously AT&T-controlled INWATS business.

In response, AT&T is introducing a mini-net service for smaller companies so they can enjoy the same toll-free capabilities previously reserved for larger firms.

With this kind of service offering and competition, users of all sizes need to evaluate their 800 service and figure out their costs and future needs. The 800 service is the only service that cannot be controlled by the paying company. In other words, the one who is called is the one who pays. For this reason, it is a money-maker for the long-distance companies.

Cosmic catastrophe of the month
This month's Turkey Award goes to the gobblers at Tie/communications, Inc., the key systems manufacturer. Someone is not communicating over there.

The company has been losing money continually since 1984. This is surprising because Tie's products are good. In fact, one of its recent products, the Data Star, is aimed precisely at the growth sector of the telephone business, companies with 50 to 150 telephones.

Now Tie has proudly introduced a product called Morgan, named after actress Morgan Fairchild.

Incredibly, marketing representatives at Tie told Horrellscopes that Morgan would not be sold by Tie's top distributors but by the so-called secondary distributors.

In fact, the executive vice-president of one of Tie's top distributors said he didn't even know what Morgan was. This means two days after Morgan was announced, Tie had not even discussed the product with its top sales reps.

Could it be that Tie is trying a new sales strategy — rewarding top sales representatives by keeping them in the dark?

Tie distributors have the right to question the company's attitude about this. A strategy — or a mistake — like this could cause Tie to go into direct marketing and bypass their traditional distribution channels.